# REPORT

**DATE:** May 1, 2003

**TO:** Energy & Environment Committee

**FROM:** Nancy Pfeffer, Sr. Planner, 213-236-1869, e-mail: pfeffer@scag.ca.gov

**SUBJECT:** Proposed State Environmental Justice Guidance

**EXECUTIVE DIRECTOR'S APPROVAL:**

**RECOMMENDED ACTION:**

Approve comment letter for forwarding to the Regional Council.

**SUMMARY:**

The California Environmental Protection Agency (Cal-EPA) Environmental Justice Advisory Committee is developing recommendations relating to the incorporation of the precautionary principle in state environmental policy. Staff has prepared a comment letter to Cal-EPA that conveys the concerns of SCAG elected officials regarding the feasibility of implementing these recommendations.

**BACKGROUND:**

Under Senate Bill 89 (2000, Escutia), the California Environmental Protection Agency's Advisory Committee on Environmental Justice was convened. The Committee consists of seventeen members representing a variety of interests. A list of the Committee members is attached. The Committee has been meeting since May 2002 and provides advice to the Secretary of Cal-EPA, who may act on it at his discretion.

The Committee is developing a draft Environmental Justice Strategy Recommendations Document. Recently, the Committee has discussed incorporating the "precautionary principle" into this strategy document. Please note that at the time of EEC agenda preparation, the proposed wording on the precautionary principle had been incorporated into the full strategy document, which is included for your information. However, this action item is concerned only with the language about the precautionary principle, pending further direction by the Committee.

The precautionary principle has roots in German social policy and gained international currency in the 1990's in the context of European Union policy development regarding genetically modified organisms and foods. Since then it has been taken up by

environmental advocates concerned with trends such as global climate change.

There are few definitions of the precautionary principle. One of the earliest dates from the 1992 United Nations Conference on Environment and Development in Rio de Janeiro. It reads

> "In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation."

A more expansive definition of the precautionary principle was adopted at the Science and Environmental Health Network's 1998 Wingspread gathering, and is the one that was contained in the Cal-EPA Advisory Committee's initial draft suggestions for integration of the precautionary principle into the environmental justice strategy:

> "When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not fully established scientifically. In this context the proponent of an activity, rather than the public, should bear the burden of proof. The process of applying the Precautionary Principle must be open, informed, and democratic and must include potentially affected parties. It must also involve an examination of the full range of alternatives, including no action."

The scope and implications of the precautionary principle are extremely complex, invoking both politics and science and the uneasy relationship between them. The principle is not very clearly defined, and is often interpreted in different ways. Proponents say that it represents "common sense" and that it is based on valuing all natural life and systems. They emphasize that the burden of proof of safety should be on the proponent of an activity, rather than on the public. Opponents of the principle frequently say that its application would slow or even halt any technological advances, or that it is an emotional response to perceived environmental threats. Because the principle is so controversial, some papers are attached that give more background.

The precautionary principle is one way of making decisions with incomplete information. Clearly, there are cases where a precautionary approach can have value. In hindsight, the addition of MTBE to gasoline for air pollution control is just such a case. A precautionary approach is also related to the principles of product stewardship recently adopted by SCAG, which call for consideration of the full costs of a product or process. However, the Cal-EPA draft document contains recommendations for actions by state and local government that include the following:

"Requiring schools and municipalities to adopt ordinances that implement Pollution Prevention or precautionary approaches to reduce and eliminate the use of toxic pesticides, cleaners, paints, inks, etc., based on a comprehensive assessment of alternatives;" (p. 22)

"Requiring municipalities to redesign traffic flow to limit or eliminate diesel vehicle traffic through residential communities;" (p. 22)

"[Cal-EPA should] Collaborate with OPR [the Governor's Office of Planning & Research] to identify actions that local governments should consider (or: 'could take') to reduce impacts of pollution in communities identified as disproportionately impacted, such as: [1] Creation of buffer zones around significant sources of risk; [2] Relocation of small sources away from residential areas or sites of sensitive receptors..." (p. 25)

"[Cal-EPA should] Collaborate with OPR on the development of land use and zoning guidance for municipalities, including: [1] Requirement for municipalities to demonstrate integration of environmental justice principles into general plans; and [2] Requirement for municipalities to adopt new land use and zoning laws which use a buffer zone or other measure to prevent the location of residences, schools, or other sensitive populations near sources of pollution." (p. 25)

Whether to support or oppose the precautionary principle is a large and serious question, and one that the Committee could legitimately spend much time discussing. Staff is therefore recommending that today's discussion be limited to the attached proposed comment letter. The letter acknowledges the potential value of a precautionary approach, without taking a position, and goes on to express concern that some of the specific measures suggested in the Advisory Committee draft could impose substantial financial burdens on local governments.

**FISCAL IMPACT:**

Adoption of any of the requirements discussed could have substantial fiscal impacts on SCAG member jurisdictions. Staff time in support of this analysis is included in the current year's Overall Work Program under Work Element 03-200 (Environmental Justice).

#84162 v1 - EEC Memo EJ Guidelines
Pfeffer

**PROPOSED SCAG COMMENT LETTER FOR APPROVAL**

**DRAFT**

(date)

Mr. Romel Pascual
Assistant Secretary for Environmental Justice
California Environmental Protection Agency
1001 I Street, P.O. Box 2815
Sacramento, CA 95812

SUBJECT: State Environmental Justice Strategy Document

Dear Mr. Pascual:

The Southern California Association of Governments represents six counties – Imperial, Los Angeles, Orange, Riverside, San Bernardino, and Ventura – that are home to more than 16 million people. Our governing board, the Regional Council, consists of 74 local elected officials.

We are writing to express our concern regarding suggested language in the draft California EPA Environmental Justice Advisory Committee Recommendations to the Cal/EPA Interagency Working Group on Environmental Justice. Our specific concern is with several items related to the application of the "precautionary principle."

While SCAG acknowledges that there can be value to a precautionary approach in environmental protection, we have not taken a position regarding the precautionary principle. We are, however, concerned about several precautionary measures for local governments suggested in the draft. Steps such as adopting precautionary ordinances, rerouting diesel vehicle traffic, relocating small businesses, or establishing buffer zones could be extremely burdensome or infeasible.

If these recommendations are made to Cal/EPA, and if the agency decides to adopt them in policy, we strongly urge you not to make them requirements on local government. It is our hope that Cal/EPA will allow local governments full flexibility in responding to any new state environmental justice guidance or policy.

Thank you very much for considering our views in this important process. If you have any questions in this matter, please contact Nancy Pfeffer of SCAG at 213-236-1869 or pfeffer@scag.ca.gov.

Sincerely,

(SCAG President)

cc: Winston Hickox, Secretary, Cal/EPA

**THE CALIFORNIA ENVIRONMENTAL PROTECTION AGENCY'S ADVISORY COMMITTEE ON ENVIRONMENTAL JUSTICE** [1]

September 2002

The California Environmental Protection Agency (Cal/EPA) selected the following members to its Advisory Committee on Environmental Justice

**Environmental Justice Organizations (2)**
- Henry Clark, Executive Director, West County Toxics Coalition – Richmond, CA
- LeVonne Stone, Executive Director, Fort Ord Environmental Justice Network – Monterey, CA

**Environmental Organizations (2)**
- Joseph K. Lyou, Director of Programs, California League of Conservation Voters Education Fund - Los Angeles, CA
- Carlos Porras, Executive Director, Communities for a Better Environment – Huntington Park, CA

**Community Organizations (2)**
- Eva Vasquez-Camacho, United Farm Workers of America, Bakersfield, CA
- Diane Takvorian, Executive Director, Environmental Health Coalition – San Diego, CA **Advisory Committee Co-chair**

**Federally Recognized Tribe (1)**
- Dorothy Hallock, Planning Director, Fort Mojave Indian Tribe – Needles, CA

**Large Business (2)**
- Robert Harris, Vice-President, Environmental Affairs, PG&E – San Francisco, CA
- Cindy K. Tuck, General Counsel California Council for Environmental and Economic Balance (CCEEB), Sacramento, CA

**Small Business (2)**
- Cynthia McClain-Hill, Land Use & Environmental Attorney, McClain-Hill Associates – Los Angeles, CA
- Donna Pittman, Principal, Pittman & Associates – San Francisco, CA

**Planning Agencies (2)**
- Detrich Allen, General Manager, Department of Environmental Affairs for the City of Los Angeles – Los Angeles, CA – **Advisory Committee Co-chair**
- James Kennedy, Redevelopment Director, Contra Costa County Redevelopment Agency – Martinez, CA

**Certified Unified Program Agency (CUPAs) (2)**
- William Jones, Chief, County of Los Angeles Fire Department/Health Hazardous Materials Division - Los Angeles, CA
- Michael Dorsey, County of San Diego, Department of Environmental Health - San Diego, CA

**Air District (2)**
- Barbara Lee, Air Pollution Control Officer, Northern Sonoma County Air Pollution Control District – Healdsburg, CA
- Barry R. Wallerstein, Executive Officer, South Coast Air Quality Management District – Diamond Bar, CA

[1] Senate Bill 89 (Escutia, 2000, Public Resources Code Section 72003) requires the Secretary of Cal/EPA convene an advisory committee on Environmental Justice.

**DRAFT RECOMMENDATIONS OF THE CAL/EPA ENVIRONMENTAL JUSTICE ADVISORY COMMITTEE TO THE CAL/EPA INTERAGENCY WORKING GROUP ON ENVIRONMENTAL JUSTICE**

**33 PAGES**

*****DRAFT - DO NOT CITE OR QUOTE *****

Recommendations of the Cal/EPA Environmental Justice Advisory Committee
to
the Cal/EPA Interagency Working Group on Environmental Justice

**draft date: April 21, 2003**

## I. Environmental Justice in California

This report has been prepared by the California Environmental Protection Agency's Advisory Committee on Environmental Justice. The report covers specific areas in response to legislative mandate. More importantly, this report reflects the collective judgement of the Committee about the steps needed to make Environmental Justice a reality for all Californians.

The Advisory Committee on Environmental Justice fully supports the goal of Environmental Justice, as defined in state law, for all Californians. The Committee recognizes that this goal has not yet been reached. There are still gaps in data, and tools that need to be developed, but the Committee believes that there are also steps that can be taken now. This report outlines many things that can and should be done to achieve the goal of Environmental Justice. The Committee fully endorses the use of good science, and robust and meaningful participation by the public in environmental decision-making; at the same time we do not want our recommendations for developing data and tools to result in delays in implementing those steps that can clearly be taken right away. To that end, the Committee's report also includes timelines and next steps, and above all, accountability for implementing these recommendations.

*Note to Committee #1: In its present form, the report does NOT include timelines or next steps. In order to make sure that general development of data & tools does not delay action on those things we believe can and should be done now, the Committee has to identify which action items are immediate, and which depend on additional data and/or tools.*

The Environmental Justice movement is deeply rooted in civil rights, and the struggles of people who have historically been marginalized. In their fight to be treated fairly and accorded equal protection under all of our nation's laws, they have demanded equal protection of their health and environment. In particular, the Environmental Justice movement has been championed by people of color, Native American tribes, farmworkers, and low-income communities. The movement has been characterized by passionate debate, and many different views; although this report does not completely set out the scope of these views, we must acknowledge their importance in shaping public policy. As background, a general history of the movement is provided. A more detailed summary** is appended to the report, as is a list of additional references. What this report does show, however, is that Environmental Justice is of great importance to the people of California, and has become a fundamental goal for the state's environmental programs.

California law defines "Environmental Justice" to mean: "The fair treatment of people of all races, cultures, and incomes with respect to the development, adoption, implementation, and enforcement of all environmental laws, regulations, and policies" (Government Code Section 65040.12).

***Note to Committee #2: The "summary" referred to here is a placeholder - the Committee has not discussed this item, nor decided what, if any, summary would be attached. Still needed, as of 4/21/03.*

Environmental Justice first gained national prominence through a protest against the proposed siting of a landfill for polychlorinated biphenyls (PCBs) in a predominately African-American county in North Carolina. The phrase "environmental racism" was used to refer to policies and activities that, either intentionally or unintentionally, result in the disproportionate exposure of people of color to environmental hazards. A 1983 study published by the U.S. General Accounting Office (GAO) found that in the southeastern United States, three of four commercial hazardous waste landfills were in communities with more African Americans than whites. The United Church of Christ Commission for Racial Justice expanded the 1983 GAO study to the national level and found similar results. A total of 45 studies conducted by various investigators between 1976 and 1993 examined the role of race and income level in exposure to environmental hazards, and found disparate impacts in the great majority of cases studied (87 percent and 74 percent, respectively; see Appendices F and I for references)**.

***Note to Committee #3: Cal EPA staff have not yet fully reviewed the referenced material, nor has the Committee been provided with these studies; the figures cited were taken from a separate report prepared for Cal EPA by an intern and should be verified prior to finalizing this report. Romel has agreed to do this. Still needed, as of 4/21/03.*

In October of 1991, advocates attending the First National People of Color Environmental Leadership Summit drafted a statement called "Principles of Environmental Justice." These Principles articulated broad goals for communities and environmental justice. They asserted that all people have a fundamental right to clean air, water, land, and food. They called for policy based on mutual respect, free from discrimination or bias. They affirmed communities' right to self-determination, and to participate as partners in every level of decision-making, including needs assessment, planning, implementation, enforcement, and evaluation. Finally, the principles expanded the concept of "environment" beyond ecological and natural systems, to include places where people live, work, play, and go to school.

In 1994, a newly inaugurated President Clinton issued Executive Order 12898: "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations." The executive order requires that all federal agencies incorporate environmental justice into their missions. Specifically, federal agencies are required to address situations where their programs, policies, or activities result in adverse health or environmental impacts that are disproportionately high and adverse in low income communities or communities of color.

*Note to Committee#4: the Subcommittee requested verification of the next three sentences. Counsel to the Committee indicated that legislation had not been passed. Discussion pointed to some of the following points being covered in the letter that accompanied the order; the Committee requested a copy of the letter and that the letter be included in the appendices. Still needed, as of 4/21/03.*

The order is binding on all federal agencies. Some of the specific steps agencies were directed to take include enhanced public participation in federal assessments of potential environmental impacts from proposed projects, and increased public access to environmental information, documents, and meetings. Agencies were also directed to analyze the effects of permitting decisions on low income communities and communities of color, and to apply the non-discrimination requirement of Title VI of the 1964 Civil Rights Act to environmental decision-making.

There is an important aspect of Environmental Justice that has been more fully articulated, and more consistently implemented, at the federal level than in California. It involves Environmental Justice as it relates to Native American tribes. The federal government holds a "trust responsibility" with tribes that "requires the federal government consider the best interests of the Tribes in its dealings with them and when taking actions that may affect them. The trust responsibility includes protection of the sovereignty of each Tribal government" (for references and further discussion, see Appendix G: Environmental Justice and Tribes). The federal government also has a consistent policy of conducting its relationships with Tribes on a government-to-government basis. This has not always been the case in relationships between Tribes and states, including the State of California. The central point of contention is the limited (or complete lack of) applicability of state law on tribal lands. As a result, there are a number of issues that further complicate Environmental Justice for Native American Tribes in California. These issues include, but are not limited to, the need for clearer definition of and limits on sovereignty, the impacts of the delegation of federal authority, cross-border impacts between Tribal and non-tribal lands, differences between Tribal, federal and state standards and environmental programs, and the handling of socioeconomic impacts.

Environmental Justice became part of California's laws through legislation enacted between 1999 and 2001. The term "environmental justice" was formally defined when Governor Davis signed Senate Bill 115, authored by Senator Hilda Solis, in 1999. This bill designated the Office of Planning and Research (OPR) as the agency charged with coordinating the state's efforts for environmental justice programs. It also required the California Environmental Protection Agency to take specific actions in designing its mission for programs, policies, and standards within the Agency. In 2000, Governor Davis included a specific appropriation to Cal/EPA for its environmental justice program, and also signed Senate Bill 89, authored by Senator Martha Escutia. SB 89 established a procedural framework for pursuing environmental justice, and created the Interagency Working Group on Environmental Justice, which includes the heads of Cal/EPAs Boards, Departments, and Office, and the director of the Office of Planning and Research. SB 89 also created the Advisory Committee on Environmental Justice, made up of external stakeholders, to assist the Working Group in developing a strategy to identify and address environmental justice gaps in Cal/EPA programs (additional details are provided in

Section II, Legislative Mandate). Senate Bill 828 (Alarcon, 2001) established a deadline for the Cal/EPA Boards, Departments and Office to identify and address gaps in their programs that may impede the achievement of environmental justice. Finally, Assembly Bill 1553 (Keeley, 2001) required the Office of Planning and Research to establish guidelines for incorporating environmental justice into the general plans adopted by cities and counties. Additional information about these bills, and the agencies they affect is discussed in the next section of this report.

## II. Legislative Mandate

In California, legislation on environmental justice has mandates focused on four entities: Cal/EPA, OPR, the Interagency Working Group, and the Advisory Committee. Cal/EPA is the umbrella agency that oversees all of the state's environmental agencies, also known as its Boards, Departments, and Office. These agencies make environmental decisions for the state, and must ensure environmental justice in their decision-making. The agency that has the overarching responsibility for coordinating environmental justice programs for all state agencies, however, is the Office of Planning and Research, or OPR. The director of OPR, the Secretary of Cal/EPA, and the heads of the Cal/EPA Boards, Departments, and Office, sit together on the Interagency Working Group on Environmental Justice; this working group must create a strategy to identify and address environmental justice gaps within their respective programs. In order to assure active and balanced participation by affected stakeholders outside of these agencies, the Legislature also established the Cal/EPA Advisory Committee on Environmental Justice. This Report was prepared by the Advisory Committee in response to a specific legislative mandate. It also includes recommendations that go beyond the specific mandate, that the Advisory Committee felt were important to bring forward. This section of the report provides a brief description of the four entities mentioned above, and their specific mandates on Environmental Justice. Please refer to Appendix H for more complete information about California State law on Environmental Justice.

The Cal/EPA Boards, Departments, and Office (BDOs): The California Environmental Protection Agency, or Cal/EPA coordinates the activities of six environmental Boards, Departments, and Office, including the Air Resources Board, the Department of Toxic Substance Control, the Integrated Waste Management Board, the Department of Pesticide Regulation, the Office of Environmental Health Hazard Assessment, and the Water Resources Control Board. The mission of Cal/EPA is "To improve environmental quality in order to protect public health, the welfare of our citizens, and California's natural resources. Cal/EPA will achieve its mission in an equitable, efficient, and cost-effective manner." The agency has historically focused on multi-media coordination. It is now responsible for taking specific actions to achieve Environmental Justice in California.

Senate Bill 115 (Solis, 1999) requires the agency to conduct its programs and promote enforcement in a manner that "ensures fair treatment of people of all races, cultures, and income levels, including minority populations and low-income populations of the state," and develop a model mission statement on Environmental Justice. It also directs Cal/EPA to ensure greater public participation in the development, adoption, and implementation of its environmental

regulations and policies, promote enforcement, improve research, and identify differential patterns of consumption of natural resources between different socio-economic groups.

Senate Bill 89 (Escutia, 2000) charges the Secretary of Cal/EPA to convene a working group (see below) to assist the agency in developing "an agencywide strategy for identifying and addressing gaps in existing programs, policies, or activities that may impede the achievement of environmental justices." SB 89 also directs the Secretary to convene an advisory group of external stakeholders (see below) to assist the agency and the working group in developing the agency's strategy.

Senate Bill 828 (Alarcon, 2001) requires each Cal/EPA BDO to review its programs, policies, and activities to identify and address gaps that may impede the achievement of environmental justice. The Bill also established statutory deadlines for the completion of specific actions under SB 89.

These bills have been incorporated into California law in Government Code, Section 65040.12 (Title 7, Division 1, Chapter 1.5, Article 4), and Public Resources Code, Sections 71110-71116 (Division 34, Part 3). Please refer to Appendix H for more complete information about California State law on Environmental Justice

Cal/EPA's six Boards, Departments, and Office, and their mission statements, are described below:

*The Air Resources Board (ARB):* The ARB oversees activities of 35 local and regional air pollution control districts. Districts regulate industrial pollution sources, issue permits, and ensure industries adhere to air quality mandates. The ARB also has primary responsibility for regulating emissions from mobile sources in California, the largest emissions sector, as well as consumer products. Its mission statement is "To promote and protect public health, welfare and ecological resources through effective and efficient reduction of air pollutants in recognition and consideration of the effects on the economy of the state."

*The Department of Toxic Substances Control (DTSC):* DTSC regulates hazardous waste facilities. It also oversees the cleanup of hazardous waste sites and ensures that state and federal requirements for managing hazardous wastes are implemented. Its mission statement is "To protect public and the environment from harmful exposure to hazardous substances, without unnecessarily impacting sustainable growth and development."

*The Integrated Waste Management Board (IWMB):* The IWMB promotes achievement of waste diversion mandates by local jurisdictions (cities and counties). It fosters markets for recovered recyclables, and enforces legal provisions to protect the environment and public's health and safety. Its mission statement is "To reduce waste, promote the management of all materials to their highest and best use, and protect public health and safety and the environment, in partnership with all Californians."

*The Department of Pesticide Regulation (DPR):* DPR regulates pesticide sales and use, and fosters reduced-risk pest management. The Department also oversees product

evaluation/registration, environmental monitoring, and residue testing of fresh produce. It also oversees local use enforcement through the county agricultural commissioners. Its mission is "To protect human health and the environment by regulating pesticide sales and use and by fostering reduced-risk pest management."

*The Office of Environmental Health Hazard Assessment (OEHHA):* OEHHA identifies and determines levels of chemicals that cause cancer and reproductive harm. Its mission statement is "To protect and enhance public health and the environment by objective scientific evaluation of risks posed by hazardous substances."

*Note to Committee#5: The Committee requested an updated description of OEHHA (and any other BDO whose responsibilities have changed since we were provided with descriptions of their programs in January 2002. Any updates will be incorporated when received. This is still needed, as of 4/21/03.*

*The State Water Resources Control Board (SWRCB):* The Board allocates water rights and arbitrates water right disputes. It develops statewide water protection plans, establishes water quality standards, and guides the nine Regional Quality Control Boards. Its mission statement is "To preserve and enhance the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations."

The heads of each of the Boards, Departments, and Office are required to participate in the Cal/EPA Interagency Working Group (see below) under SB 89. They are also required by SB 828 to implement the strategy developed in consultation with the Interagency Working Group and the Cal/EPA Advisory Committee (see below).

The Office of Planning and Research: The Office of Planning and Research (OPR) is established as the coordinating agency in state government for Environmental Justice programs, under SB 115, in Government Code § 65040.12(c). OPR holds one-day workshops to teach state agency personnel about environmental justice, its statutory underpinnings, and how to address environmental justice issues that may arise in their work. The Office may provide more detailed and specialized training at a later date for interested state personnel who have completed the basic training. SB 89 requires the director of OPR to sit on the Interagency Working Group, along with the heads of the Cal/EPA Boards, Departments, and Office. It also requires the director to consult with the Secretary of Cal/EPA, the Resources Agency, the Trade and Commerce Agency, the Business, Transportation and Housing Agency, and the Cal/EPA Interagency Working Group on Environmental Justice, and any other appropriate state agencies, and all other interested members of the public and private sectors of the state. The director must coordinate the Office's efforts and share information, and review and evaluate information from federal agencies relevant to environmental justice. AB 1553 (Keeley, 2001) requires OPR to develop guidance for local land-use planning agencies to incorporate environmental justice into their General Plans. At the time of this report, OPR has developed and circulated a draft guidance document for public review and comment.

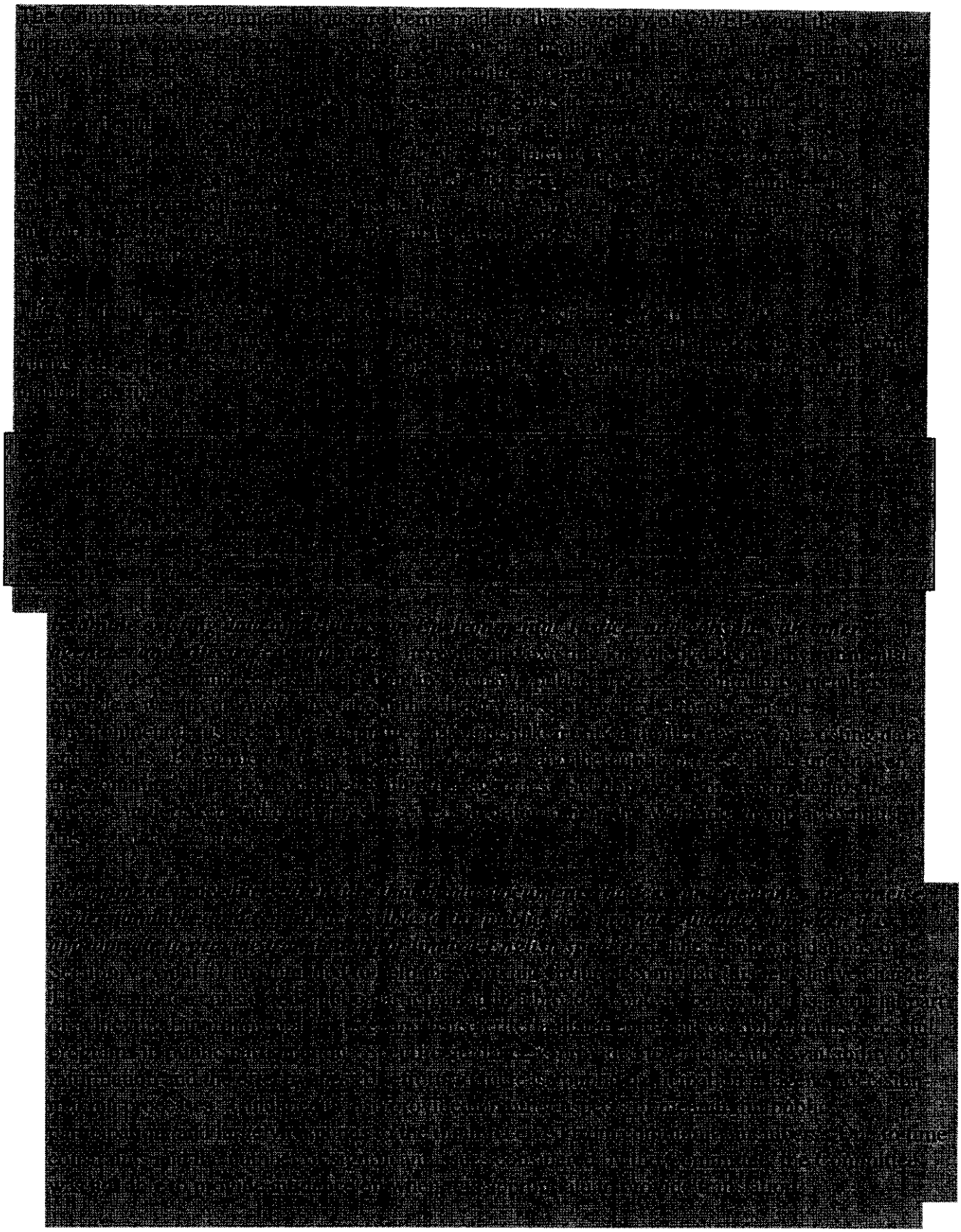
The Cal/EPA Interagency Working Group: The Cal/EPA Interagency Working Group is made up of the Secretary of Cal//EPA, the heads of its Boards, Departments and Office, and the director of

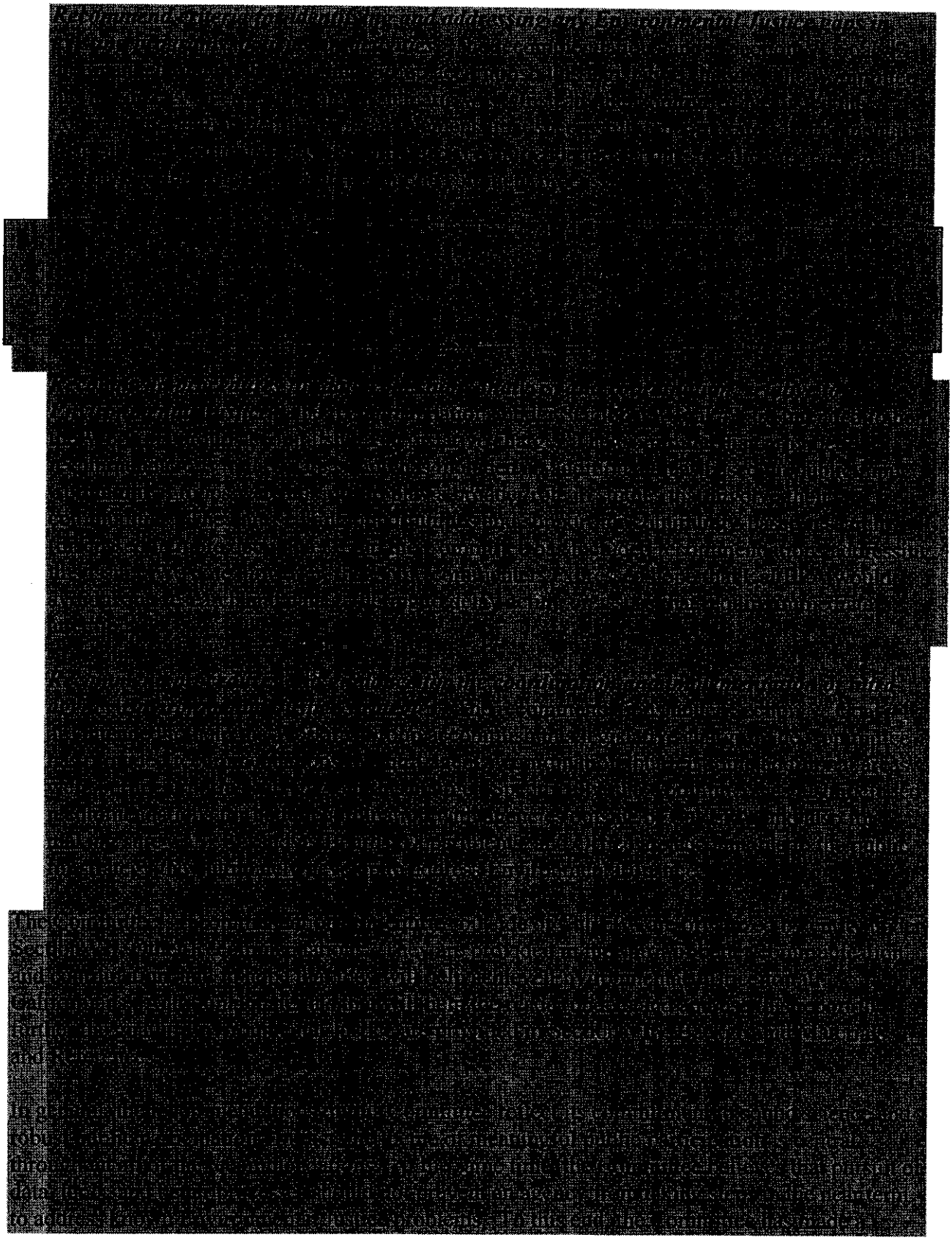
OPR. Under SB 89, the Working Group is required to examine existing data and studies on environmental justice and coordinate with other governmental agencies, and community groups. It is directed to recommend criteria to the Secretary of Cal/EPA for identifying and addressing any gaps in existing programs, policies, or activities that may impede achievement of environmental justice. It must recommend procedures and guidance to Cal/EPA for coordination and implementation of environmental justice, and for data collection, analysis, and coordination. It must also recommend procedures to ensure that public documents, notices, and hearings are concise, understandable, and readily accessible, and provide guidance for determining when it is appropriate for Cal/EPA to translate crucial documents, notices, and hearings for limited-English-speaking populations. The Working Group is also required to hold public meetings and take public comments on their proposed recommendations.

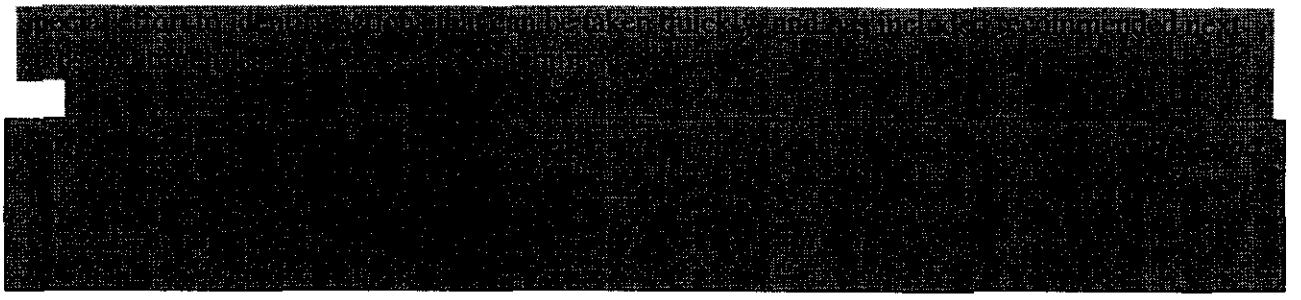
The Cal/EPA Advisory Committee on Environmental Justice: The Cal/EPA Advisory Committee on Environmental Justice was established in December, 2001, in response to Senate Bill 89 (Escutia, 2000). The membership and mission of the Committee is set out the Public Resources Code § 71114. The Committee was originally created with thirteen members from specific sectors of external stakeholders. These thirteen members include: two representatives of local or regional land use planning agencies; two representatives from air districts; two representatives from certified unified program agencies (CUPAs); two representatives from environmental organizations; three business representatives (two from large and one from small business); and two representatives from community organizations. One of the first actions taken by the Committee, in response to valid concerns from the public, was to vote to support legislation to expand the representation on the Committee. In particular, numerous public complaints were made that the Committee did not include representation from African American community groups and Native American tribes, nor did the community/environmental group membership reflect a good geographic representation of the state. The legislation (Senate Bill 1542, Escutia) which was supported by the Committee, was signed by Governor Davis in September, 2002. Under this bill, four members were added to the Committee, which now includes seventeen members. The four new members include two additional representatives from community groups (both of whom represent African American communities), one representative of Native American tribes, and one additional representative of small businesses. The new members also bring greater geographic diversity to the Committee.

Under Senate Bill 89, the Committee is mandated to assist Cal/EPA and the Interagency Working Group "by providing recommendations and information to, and serving as a resource for" them as they carry out their Environmental Justice mandates (Public Resources Code § 71114(a)).

## III. Purpose and Summary of Recommendations







## IV. Summary of Public Participation and Comments Received

*Background:* The Advisory Committee completely supports the importance of full and meaningful public participation in environmental decision-making processes. In keeping with this belief, the Committee provided extensive opportunities for the public to engage the Committee in discussions about the development of these recommendations, and about Environmental Justice in general.

- All Committee meetings are public meetings and include at least one public comment period.
- Many Committee meetings have included more than one opportunity for public comment, and the first few Committee meetings were almost entirely devoted to public comment.
- Committee meetings have been held in a number of different locations to allow broader public participation. Although more recent budget constraints have limited the Committee's ability to travel throughout the state, meetings are taped and conference call and online access to meetings have been provided.
- Meeting notices have been made provided in multiple languages and interpreters have been made available at the meetings.
- Information about this process has been available on the Cal/EPA website, in writing, and by email.
- Comments on the draft recommendations, and Environmental Justice issues in general have been received through oral testimony and written correspondence (including electronic correspondence).

*Draft EJ Strategy Framework:* The process of preparing these recommendations began with a "white paper" document prepared by Cal/EPA staff. The document framed as a draft strategy for achieving Environmental Justice Goals; it included four key elements, each with more specific objectives and possible action items to implement the elements. The four elements were drafted as follows:

- **Element #1:** *Ensure environmental justice is integrated into the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.*
- **Element #2:** *Ensure meaningful public participation and promote community capacity building to allow communities to be effective participants in environmental decision-making processes.*

- **Element #3:** *Improve research and data collection to promote and address environmental justice related to the health and environment of communities of color and low-income populations.*
- **Element #4:** *Ensure effective cross-media coordination and accountability in addressing environmental justice issues.*

The draft EJ Strategy Framework document was reviewed by the Committee and used by Cal/EPA to guide public discussion at a series of five workshops held throughout the state. Workshops were held in Oakland, Monterey, Fresno, Los Angeles, and San Diego, during the month of September 2002. Cal/EPA staff conducted extensive community outreach in advance of each workshop, including mail-outs, email announcements, personal communications, and posting on the Cal/EPA website. Materials were available in English and Spanish. A combined total of roughly 200 people participated at the five locations, including participation by Committee Members.

At each of the workshops, Cal/EPA staff reviewed recent legislation on Environmental Justice in California, as well as the structure and role of Cal/EPA as an environmental agency, and specifically in regard to Environmental Justice. The draft EJ Strategy Framework was presented, including objectives and potential action items, and public input was sought. During the facilitated discussion, participants were encouraged to articulate concerns and perspectives and respond to the draft EJ Strategy Framework. Participants made comments to support, revise, or object to the Elements, recommended additional objectives or potential action items, and provided examples that illustrated problems or clarified interpretations of the Framework document. Each workshop was tape recorded and transcribed, and subsequent written comments were encouraged.

Using the public input from the workshops, Cal/EPA staff revised and expanded the draft EJ Strategy Framework, incorporating additional objectives and actions, as well as observations and examples identified by the public.

*Draft Recommendations Report:* The revised draft EJ Strategy Framework document was discussed by the Committee at a public meeting in November, 2002, and formed the starting point for the Committee's deliberations and the recommendations in this report. At the November meeting, the Committee identified the basic structure and general content for this report, and established a subcommittee to undertake the actual drafting of the document. Over the subsequent six months, the Drafting Subcommittee prepared draft language in sections for the Committee to discuss and the public to comment on at Committee meetings, and then incorporated changes to the document based on those discussions and comment.

*Summary of Public Comments:* During the roughly 18-month period that the Committee met to develop these recommendations, a wide range of issues has been identified by members of the public. A very brief summary of some of the concerns most frequently heard includes the following:

- The individual authorities, roles, and responsibilities of the different environmental agencies at the federal, state, and local level are very difficult for members of the public to sort out, and at times appear to be unclear to the agencies themselves.
- Environmental agencies have a long history of failing to engage community members in a meaningful way in the decisions being made that affect the community.
- There is a gap in authority/accountability when Environmental Justice problems arise because of federal facilities, and this needs to be addressed.
- How much authority does Cal/EPA have to really address Environmental Justice problems, and is this just another paperwork exercise?
- The business community needs agencies to approach environmental regulation in a systematic way, with clear criteria for requiring action that are consistently and fairly applied.
- Careful land-use and zoning decisions are the foundation for ensuring Environmental Justice goals are achieved.
- Existing environmental programs (such as CEQA) have failed to provide community members with the degree of environmental protection they desire.
- The legislative mandate for Cal/EPA to address Environmental Justice has very specific language, especially concerning criteria and gaps, that should not be ignored.
- Community members want greater control over their communities, and decisions that affect them.
- Workers and organized labor groups do not want environmental protections to be implemented in a way that threatens jobs.
- Local governments need the flexibility to prioritize efforts in response to local needs, in order to maximize limited resources.
- Community members believe project proponents (i.e., industry) should have to prove that a proposed project is safe before the project could be approved.
- The business community wants environmental decisions to based on sound science and careful cost-benefit analysis.
- Community members do not believe that environmental agencies provide adequate enforcement of existing laws, regulations, and requirements, or that they respond adequately to community complaints.
- Local governments have great concern about new mandates that do not have associated funding.
- Farmworkers need better protection from pesticide exposure for themselves and their families, both in the field and in the communities surrounding the fields, and especially at schools.
- Agencies need to do a better job of assessing cumulative impacts on communities.
- Regardless of data needs and the lack of tools for sophisticated analyses, certain communities are obviously impacted and there are things that can and should be done now to help them.

The above is not in any way a complete list of the concerns that have been raised to the Committee, nor does it capture the strong emotions that accompanied much of the testimony. It is also not organized to reflect any priority or importance. It does, however, provide a general sense of the range of concerns that the Committee has had to consider in preparing its

recommendations. A more detailed summary of public testimony and written comments is included in Appendix I.

The Committee also solicited specific public input on the use of precautionary approaches, possible definitions and interpretations of the Precautionary Principle, and approaches to assessing cumulative impacts. Presentations were made to the Committee at a meeting focused specifically on those issues, and substantial written and oral public comment was received. Materials considered by the Committee can be found in Appendix *(?)*.

*Note to Committee#7: The Subcommittee requested that a paragraph be added to the original Section IV to explain how the four elements were used in the public process to guide discussion at the public meetings, and to provide a framework for written comments. .In light of the push to finalize the document, the Subcommittee revised the Section without the additional material, which was subsequently provided by Cal/EPA staff. The alternate revision is attached (it was too difficult to include both and show changes). The Committee needs to decide which version (or some other??) to use. Needed, as of 4/21/03.*

## V. Recommendations of the Cal/EPA Advisory Committee on Environmental Justice

Note to Committee #8: Section V has been revised to include Committee comments on Goal #1, and the PRELIMINARY discussions of Goal #2 on January 21, 2003. It does not reflect ANY of the discussion at the February 18, 2003 meeting (i.e., precautionary principle or cumulative impacts). Note that the Committee reached "conceptual agreement" on Goal #1, but did not approve the actual wording. There has been no agreement (conceptual or otherwise) on Goals #2, #3, or #4. In this section ONLY, the underline-strikeout format has been used selectively, to highlight the changes in substance, or wording where the words were the focus of the debate; changes solely in formatting, grammar, spelling, etc. are NOT highlighted. This was done to make the substantial changes easier to see.

In considering its Recommendations, the Committee sought and received substantial public comment (see previous section). The Committee has given careful consideration to the comments made by the public, and is grateful for the input. The Committee has structured its Recommendations around four key goals. These goals are framed after the four draft strategy elements, and have been identified by the Committee as Environmental Justice goals. Broadly, they reflect the mandates given to the Committee and the Interagency Working Group. The goals also reflect the Committee's understanding of the broader issue of environmental justice, and therefore encompass more than the specific items the Committee was directed to address. The goals include: (1) providing for meaningful public participation, (2) integrating Environmental Justice in all environmental programs, (3) improving research and data collection with respect to Environmental Justice, and (4) ensuring coordination and accountability in addressing Environmental Justice.

The Committee expects that each Cal/EPA Board, Department, and Office will develop its own policy document to more specifically guide its Environmental Justice program. Some of the

BDOs have already begun this process, and may even have completed a policy document on Environmental Justice. These BDOs should still review the recommendations in this report, however, to identify any areas or concepts that they have not addressed, and to support collaboration and ensure program integration across media and throughout the agency. The four Environmental Justice Goals identified by the Committee should guide the creation of each BDO policy document. For each Goal, the Committee has established a general check list of the criteria that distinguish successful programs in that area. A list of warning indicators is also provided, to alert the BDOs to programs that may not be achieving the Environmental Justice Goals. The BDOs should use these lists as they develop and implement policies and actions for Environmental Justice.

**Goal #1:** ***Ensure meaningful public participation and promote community capacity building to allow communities to be effective participants in environmental decision-making processes.***

Meaningful public participation is critical to the success of any effort to address environmental justice issues. For that reason, it is the first goal identified by this Committee, and the successful implementation of the other goals rests on realizing this one. The criteria that distinguish successful programs for meaningful public participation include:

- ✓ Guidelines for meaningful public participation
- ✓ The identification of an office or contact person who has authority and responsibility for coordinating effective public participation opportunities
- ✓ Awareness of and sensitivity to community-specific communication issues (including media, venue, language, and other cultural issues)
- ✓ Relationship building prior to environmental decision points
- ✓ Educational, technical, and other assistance (i.e., capacity building) to support meaningful participation in environmental decisions
- ✓ Early public involvement in environmental decisions
- ✓ Availability and timeliness of materials and information
- ✓ Feedback to participants and commenters

There are also indicators that a public participation program is not successful. If one or more of these indicators are present, the underlying cause(s) should be examined because there are other reasons that these circumstances might occur even if the program itself is sound. Gaps in programs that result in less meaningful public participation may be indicated by the following warning indicators:

- o Complaints from the public (including lack of opportunity to comment, inadequate notice of events, inconvenient meeting times/locations, unavailable materials, lack of responsiveness from agency, etc.)
- o Poor attendance at public meetings and low response to notices, requests for comment, etc.
- o Lack of participation by a particular community or segment of a community, especially if English is not the primary language
- o General belief within the community that their input does not influence the outcomes of agency decisions.

The Committee recommends specific actions to ensure meaningful public participation in environmental decision-making. The recommendations are organized into four categories. These categories are (a) Guidelines & Staff Training, (b) Availability of Information, (c) Capacity Building, and (d) Relationship Building.

Guidelines & Staff Training: These are recommendations for internal activities to support meaningful public participation.

- Develop guidelines for agency staff on meaningful public participation and community relations that emphasize collaboration with community members on environmental issues and building and sustaining productive working relationships with communities.
- Enhance staff training to increase awareness of environmental justice, including but not limited to, public participation, meaningful community outreach, and public accessibility of information, and ensure that staff training is an integral component of all of these elements.
- Collaborate with other agencies or governmental offices (including federal, state, local, and tribal governments, and the Mexican government on cross-border issues) to leverage resources, avoid duplication of effort, and enhance effectiveness of public participation opportunities.
- Extend staff training opportunities to stakeholders, especially local governments, who interact with the communities on similar or related issues.
- Add public participation responsibilities to job descriptions and include public participation criteria in employee performance reviews.

Availability of Information: These recommendations are designed to increase public access to information necessary for meaningful participation in environmental decision-making.

- Initiate outreach efforts as early as possible in the decision making process, before significant resources have been invested in a particular outcome.
- Design outreach efforts to appropriately address the culture of the community (e.g., urban, rural, migrant, etc.) to improve community participation.
- Distribute notices and materials widely throughout the community. If all materials cannot be widely distributed, provide quick, easy access for community members to obtain them.
- Use multiple ways of notifying the community of upcoming meetings, workshops, hearings, and proposed action dates (e.g., electronic posting on websites, announcements through local media, fliers at libraries, schools, community centers, etc.).
- Encourage communication in non-traditional ways; for example, use "universal" pictures to convey complex ideas instead of (or to supplement) technical written materials and blueprints.
- Ensure materials are distributed far enough in advance of meetings, workshops, hearings, or proposed action dates to allow community members sufficient time for review and comment.
- When environmental decisions directly affect a specific community (for example, siting decisions), hold meetings and workshops, at times and locations that are convenient for community members to attend
- Provide adequate translation or interpretation services for documents and public meetings.

- Complete the "plain, straightforward language" description of how to navigate California's complex regulatory process (mandated by January 2002 legislation renewing Polanco Act of 1990).

Capacity Building: These recommendations are made in response to community comments about their need for resources to increase their understanding of the technical and procedural aspects of environmental decision-making, in order to participate in a meaningful way.

- Develop and widely distribute a handbook for the public that identifies and explains public participation rights and opportunities.
- Identify opportunities to provide grants and technical assistance to communities, to enhance their knowledge and understanding of environmental issues and governmental processes.
- Implement and support the Cal/EPA Environmental Justice Small Grants program (AB 2312, Statutes of 2002) to enhance stakeholder participation in environmental decision-making processes.
- Explore ways to assist stakeholders in reviewing technical documents related to environmental decisions affecting their communities (such as providing access to technical experts through local colleges or universities).
- Provide and/or support educational and training opportunities for community members such as seminars on specific media, programs, etc. For example, a lecture by agency staff or through a local college could build community understanding of brownfield redevelopment.
- Where possible, collaborate with existing community adult-education programs.

Relationship Building: These recommendations reflect public comments underscoring the need for a respectful relationship if meaningful communication is to occur.

- Initiate communication with communities before environmental decisions/concerns arise, and continue regular opportunities for ongoing communication.
- Explore opportunities to establish community affairs offices and to recruit community residents for positions in these offices.
- Establish community liaisons, advisory groups, and task forces.
- Capitalize on existing community resources by building positive and effective working relationships with community-based and non-governmental organizations.
- Ask community members to identify issues, questions, and/or concerns, separate from the agency's agenda.
- Identify what the agency can and will do, and establish timelines and accountability.
- Provide feedback to people or groups who make comments, suggestions, complaints, requests, etc. Acknowledge ideas and efforts that shape agency actions (give credit where credit is due).
- Create and maintain an atmosphere of openness and mutual respect.

**Goal #2:** ***Integrate environmental justice into the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.***

*Establishing Criteria to Identify Environmental Justice Gaps:* Where Environmental Justice impacts have already been documented, or Environmental Justice concerns are clearly understood to exist, discussions about criteria should not prevent agencies from using available data and tools, and taking action to respond to those concerns. The Committee also recognizes that there are also circumstances where the existing data and tools do not allow a quick determination of either the problem or the appropriate response. Development of these data and tools should be a high priority, as should fair criteria for their use. In developing the data, tools, and criteria for their use, agencies should ensure meaningful public participation (see Goal #1).

Programs that have successfully integrated this Environmental Justice goal will meet the following criteria:

- ✓ Consider Environmental Justice issues in developing and revising programs and program elements, including explicit analysis of Environmental Jusitce in the staff report for significant actions, or other supporting documentation.
- ✓ Ensure that program development and adoption processes do not create new, or worsen existing, Environmental Justice problems.
- ✓ Ensure meaningful public participation in environmental decision-making processes.
- ✓ Establish guidelines, procedures, and performance measures to ensure equitable implementation and enforcement of programs.
- ✓ Include data, tools and procedures to identify existing Environmental Justice problems.
- ✓ Give high priority to actions that will address existing Environmental Justice problems.
- ✓ Dedicate resources and identify staff members responsible for assuring that the agency properly considers and addresses existing and potential Environmental Justice problems.
- ✓ Assess the relationship between socio-economic indicators (i.e., race, income, etc.) and the distribution of pollution sources and associated health impacts.

Programs that have less successfully integrated Environmental Justice may be identified by the presence of one or more of the following warning indicators:

- o Data indicate that low income populations and/or communities of color are disproportionately impacted by environmental pollution.
- o Public complaints are made regarding inadequate or unfair enforcement of agency rules and regulations.
- o Agency resources are disproportionately deployed (i.e., fewer resources are devoted to low income communities and/or communities of color than are devoted to wealthier, Caucasian communities.
- o Penalties for environmental violations with similar fact patterns are lower for violations in low income communities and/or communities of color.

*Addressing Environmental Justice Gaps:* The Committee devoted the majority of its discussions to identifying concrete steps that Cal/EPA can take to address Environmental Justice problems. In particular, the Committee gave extensive consideration to precautionary measures and approaches, and to the assessment and mitigation of cumulative impacts, especially through pollution prevention.

The Committee reached broad consensus on the importance of using precautionary approaches to environmental and public health protection. Committee members believe that it is not necessary or appropriate to wait for actual, measurable harm to public health or the environment before evaluating alternatives that can prevent or minimize harm. The Committee also recognizes that many programs currently implemented by Cal/EPA and its Boards, Departments, and Office are precautionary in nature. Based on the data available to the Committee, it also concludes that additional precaution may be needed in order to address or prevent Environmental Justice problems.

Consensus was more difficult on the question of where specifically greater precaution is warranted, and to what degree. Committee members struggled to balance a number of competing needs and concerns. The following is a brief list that is intended to characterize the types of needs and concerns the Committee worked to balance, but it is by no means complete.

- The need for programs and agencies to be more responsive to community fears about potential threats to their health and/or environment, balanced with a concern that resources are limited and need to be expended to prevent or mitigate real impacts on public health and the environment, and targeted at the most significant impacts first.
- The need for scientifically supported tools, processes, and decisions, balanced with a concern that lack of complete scientific data has been used in the past to delay or prevent reasonable actions to address pollution problems.
- The need of community members to be assured that their health and environment will not be placed at risk by environmental decisions, balanced with a concern that no action can ever be shown to be risk free.
- The need of agencies and businesses to minimize costs and maximize benefits of actions undertaken, balanced with a concern that current methods of evaluating costs and benefits do not adequately address the wider social costs and benefits of environmental decisions, or the distribution of those costs and benefits.

The Committee specifically recognizes the frustration of community members who feel they have faced unreasonable hurdles to demonstrate that their health and/or environment are in fact being harmed, or at risk of substantial harm, and the Committee believes Cal/EPA should take steps to make its decision-making processes more available and responsive to community concerns. The Committee also recognizes the importance of economic vitality in the state, and the business community's need for fair and predictable processes, and requirements that are feasible both technically and on the basis of cost; the Committee believes that Cal/EPA should pursue solutions that meet these needs.

Rather than debate definitions for broad concepts, the Committee focused its efforts on identifying practical applications of precaution and mitigation strategies that all Committee members could support. Consensus here was also difficult, but improved when certain factors were clearly present. The following list briefly characterizes select factors that fostered consensus.

- The potential harm is significant and commonly recognized (such as the exposure of children to lead in playground structures).

- The actions or alternatives contemplated have been shown in practice to be feasible and low cost (such as re-routing a truck route to a different but accessible street to avoid a school).
- Resources are available to provide technical and financial assistance (such as grant programs to reduce emissions of diesel particulate exhaust).
- Processes are transparent, and structured to allow all affected parties to fully understand the actions under consideration, to participate meaningfully, and safeguard their key interests.

Committee members also were careful to articulate outcomes that were not intended to result from these recommendations. The following list describes some of the outcomes that Committee members felt should be avoided.

- Recommendations to collect and consolidate data should not result in lengthy delays in the implementation of reasonable, feasible strategies to reduce known and significant impacts.
- Recommendations to establish policies and engage in more meaningful public processes should not supplant efforts to implement and enforce requirements for environmental and public health protection.
- Recommendations to enhance precaution should not be interpreted to mean a guarantee of zero risk, or a mandate to act without credible threat of harm.

In general, as Cal/EPA and its BDOs undertake these recommendations, they should strive to avoid extremes in their interpretations. Instead, the recommendations should be implemented in the spirit in which they were made: with a genuine desire to identify real Environmental Justice problems and circumstances of disproportionate, cumulative impacts, and to make real improvements in those situations.

*Note to Committee #9: At the March 18-19 meeting, the Committee assigned the Drafting Subcommittee the task of finding language to characterize areas of consensus and the concerns that limited it. The preceding section was intended to capture the broad areas where we reached consensus on the* concept *- as opposed to actual language - and to characterize the sensitivities and/or boundaries where consensus begins to break down.*

The following recommendations are intended to prevent the creation of new Environmental Justice problems, and to help address existing gaps identified by the Committee. In order to facilitate review and discussion of the Committee's recommendations to address Goal #2, the Committee has grouped the recommendations into three broad categories. The categories are: (a) Program Development & Adoption, (b) Program Implementation, and (c) Program Enforcement.

**Program Development & Adoption**: Program development and adoption varies somewhat between the Cal/EPA Boards, Departments, and Office, because their authorities, mandates, and administrative procedures are different. In general, however, these are activities undertaken to establish new program elements through a public process.

- Include an analysis of Environmental Justice when developing and revising programs and program elements, including explicit analysis of Environmental Justice in the staff report or other supporting documentation.
- Consult with communities and consider their priorities and concerns prior to developing or revising program elements, rules, or policies.
- Give high priority to known Environmental Justice problems when establishing program development agendas.
- Use a public process to identify opportunities to advance environmental justice goals within the current statutory and regulatory structures, as well as any necessary changes or clarifications.

- Establish, through a public process, a working definition of the "precautionary principle" as it will be used by Cal/EPA and its Boards, Departments, and Office.
- Establish, through a public process, criteria and actions to implement the "precautionary principle" as defined by Cal/EPA and its Boards, Departments, and Office.
  Or:
- Identify, for each BDO, significant decision points or processes within the existing programs where a precautionary approach is currently used, or could be used, and evaluate whether additional precaution is needed to address or prevent Environmental Justice problems.

- Identify, through a public process, a set of criteria or indicators that can be used as a coarse separator to locate and prioritize potential Environmental Justice problems. In some cases, the coarse assessment will be followed by more detailed analyses before decisions or actions are possible; in other cases, the coarse assessment may be sufficient.
- Identify, through a public process, a set of reasonable, low-cost, achieved-in-practice approaches to prevent or minimize adverse environmental impacts, and develop a process for consideration and use of these approaches.

*Note to Committee #10: The previous version had a bullet on cumulative impacts, which is now under "Risk Reduction and Pollution Prevention." Bullet 5, and bullets 6 & 7 (dashed box) are alternative language options to deal with the precautionary principle; Committee comments ranged from keeping the original two bullets, revising text along the lines of the alternative bullet, or deleting the bullets altogether b/c we have the specific action items from the March meeting. The last two bullets (squiggly box) replace prior language that referred to an "EJ screening tool" and "best management practices" which the Committee indicated heartburn issues with at the March meeting. All of these bullet changes should be reviewed and decided by the Committee.*

**Program Implementation**: As noted already, the programs of the different Boards, Departments and Office vary considerably. Public comments were received about specific programs, or aspects of those programs. The Committee has developed recommendations following the issues raised by the public, and has grouped them along common themes. The areas considered are: Facility Siting and Permitting, Risk Reduction and Pollution Prevention, Site Remediation, and Land Use and Zoning,.

*Note to Committee #11: The recommendations on Land Use and Zoning have been moved to the end of the Program Implementation section, following Site Remediation. It can be restructured, but having those recommendations come after the discussion of cumulative impact assessment made the integration of the specific recommendations from March a little bit simpler.*

Facility or Project Siting and Permitting:

- Identify the appropriate roles of Cal/EPA and its Boards, Departments, and Office in promoting Environmental Justice in permitting and siting decisions.
- Where Cal/EPA or a BDO has direct authority or decision-making responsibility in permitting and siting actions, the agency should establish, through a public process, a programmatic framework for permitting/siting decisions that includes:
  - Specific criteria to identify Environmental Justice problems when evaluating a permit/siting application;
  - Fair and effective mechanisms to address identified Environmental Justice problems as part of the permit/siting action.
- Where Cal/EPA advises or oversees local governments that have primary jurisdiction in permitting and siting decisions, the agency should work with those local governments to help them establish appropriate programmatic mechanisms to identify and address Environmental Justice gaps in permitting and siting decisions.
- Collaborate with OPR to establish general guidelines for other state agencies to use in their permitting and siting decisions to identify and address Environmental Justice issues.
- Develop and make available to other state agencies tools and information to support Environmental Justice considerations in permitting and siting decisions.
- Require the use of the least toxic materials and processes that meet project objectives for all new industrial processes.

*Note to Committee #12: There are still outstanding issues with the previous recommendations on Facility and Project Permitting and Siting. The recommendations are more detailed and extensive than some Committee members are comfortable with. At the same time, other comments would have included additional bullets requiring permit conditions to address health-based siting criteria and proportional public health protection (neither of which could the Subcommittee really understand). The bullets above may be a reasonable compromise (?) but regardless the Committee should discuss what to do with these recommendations.*

*Note to Committee #13: The following categories contain bullets that refer to "cumulative impacts" and the Subcommittee felt this term needs more discussion from the Committee. In other arenas (namely the stakeholder process to develop Environmental Justice Policies for the ARB) the term "cumulative impacts" was discarded in favor of "cumulative emissions, exposures, and health risks." That phrasing may or may not be*

*appropriate in the context of each of the following bullets, or may need to be adjusted in recognition of the broader application of these recommendations (other media with other terms of art, e.g., discharges into water, or site remediation goals). The Subcommittee also deferred discussion of the "precautionary principle" to the full Committee; the Subcommittee wanted to include additional language to assist the Committee's discussion but the specific language here has NOT been endorsed by the Subcommittee members. Finally, the Subcommittee felt that greater specificity could be provided but more discussion is needed with the IWG about specific program areas. Still needed as of 4/21/03.*

Risk Reduction and Pollution Prevention:

- Develop tools to assess cumulative impacts, and equitable, scientifically-based criteria for using these tools to identify Environmental Justice problems.
- Develop criteria and protocols for identifying and addressing EJ gaps in standard risk-assessments, taking into account sensitive populations.
- Develop criteria and protocols to enhance current approaches to cost-benefit analysis, supporting a more comprehensive evaluation of trade-offs between health, environment, innovation, economic development, and other important societal values when devising strategies to reduce risks.
- Reduce environmental risks to children through pollution prevention and other mechanisms by:
    - Identifying the pollutants and pollution sources (including industrial, municipal, transportation, and others) which present the highest risk to children, based on toxicity, proximity, persistence, or other factors;
    - Prioritizing these pollutants and processes for further action, and conducting research into non-toxic and/or less toxic alternatives;
    - Requiring adoption of non/less toxic alternatives through a comprehensive alternatives assessment process that includes evaluation of technical feasibility and cost, and allows a reasonable transition period;
    - Providing assistance and resources to businesses, municipalities, and other entities to implement non/less toxic alternatives during the transition period.

  In order to implement the above, Cal/EPA should identify exercise its existing authority, where needed seek additional authority through legislation, or promote action by other agencys that have authority, as appropriate. In implementing these actions, however, Cal/EPA should not create an unfunded mandate for local governments. Select examples of risk reduction actions include:
    - ☐ *Requiring schools and municipalities to adopt ordinances that implement Pollution Prevention or precautionary approaches to reduce and eliminate the use of toxic pesticides, cleaners, paints, inks, etc., based on a comprehensive assessment of alternatives;*
    - ☐ *Requiring municipalities to redesign traffic flow to limit or eliminate diesel vehicle traffic through residential communities;*
    - ☐ *Requiring welding operations to utilize low-fume/low heavy metal welding rods and low-fume processes;*

- ☐ *Instituting a phase-out of toxic boat bottom paints, specifically copper leaching and copper ablative bottom paints..*

- Reduce the environmental risks in impacted communities by taking the following actions. In implementing these actions, Cal/EPA should not place an unfunded mandate on local government and/or local programs.
  - Identifying all facilities based on existing data that may pose a threat to human health and the environment because of their storage, use, disposal, or emission of hazardous substances. To implement this item, Cal/EPA should make use of currently available data under California's right to know laws and federal facilities information, including Superfund and the National Priorities List (NPL), and shall at a minimum rely on the thresholds for reporting under those laws.
  - Using a public process, assess cumulative pollution burden for disproportionately impacted communities based on the degree of threatened harm to human health and the environment the communities experience.
  - Using a public process and data from the previous two steps, identify and prioritize disproportionately impacted communities.
  - Using a public process, establish goals and performance measures to reduce the threat of harm to human health and the environment in these disproportionately impacted communities, using enhanced emission controls and pollution prevention.
  - Encouraging public participation, and supporting state and local agencies, to enhance the role played by residents in disproportionately impacted communities in decisions about how to reduce pollution and risks in their community.
- Establish goals to reduce health and environmental risks, such as:
  - ☐ *Identifying contaminants in breast milk and/or children's blood, the key sources of those contaminants and routes of exposure, and setting goals and timelines to eliminate the contamination;*
  - ☐ *Setting goals and timelines for eliminating lead poisoning in children;*
  - ☐ *Setting goals and timelines for reducing the incidence of asthma.*
- Identify and address EJ gaps related to preventative approaches to risk reduction.
- Explore opportunities for demonstration for new technologies that will reduce risks.

*Note to Committee #14: There appears to be substantial concern among Committee members regarding: (1) the premise that the mere presence of a material constitutes "pollution burden" on the community; (2) the presumption that the analysis of "pollution burden" can be done for every community in the state and the lack of clear direction to begin with a manageable subset and gradually expand the analysis to additional communities; (3) the lack of focus on EJ communities, or the lack of an initial step to include an assessment of whether there is an Environmental Justice gap; and (4) the presumption that Cal/EPA can require municipalities to adopt ordinances, or even should require it (as opposed to requiring that Boards/Councils* consider *passage of ordinances. The Committee should discuss and clarify this language.*

Site Remediation:

- Develop criteria and protocols for identifying and addressing EJ gaps in clean-up related activities (e.g., standard setting, risk assessments, etc.).
- Recognizing that sites posing the greates health risk receive top priority, give high priority to remediation projects in situations of known Environmental Justice problems, especially where the contaminated site contributes a substantial portion of the cumulative risk to the community.
- To promote the reuse of known or suspected contaminated (i.e., brownfield) sites, and to increase the supply of affordable housing Cal EPA should:
    - Establish a statewide database of contaminated sites that, after clean-up, have potential for redevelopment, especially mixed-use and/or affordable housing, and publish this information online. In compiling this database, existing databases such as the state's Cortese List and lists of federal facilities with housing potential (i.e., base closures, etc.) should be consulted;
    - Establish guidelines for clean up that are based on the intended use of the site (not currently codified). Guidelines should give priority for environmental and public health concerns, consider community needs, and provide regulatory certainty and protection from litigation when environmental mitigations and other conditions have been met;
    - Fast-track the approvals process related to brownsfield remediation;
    - Provide financial and technical assistance to local jurisdictions and private/non-profit developers for site assessment and inventory development;
    - Improve implementation of requirements to eliminate duplication in oversight authority for brownsfield between the DTSC and SWRCB (State Water Res. Control Board). Improve the process for determining a lead agency in order to eliminate inefficiencies that result from fragmentation;
    - Further seek clarification of the roles of state and local agencies in brownsfield redevelopment, and assure that agencies have (or retain) the appropriate technical expertise, including access to toxicologists and public participation specialists when overseeing brownfield remediation; and
    - Provide fiscal and regulatory incentives to developers and communities to clean-up contaminated sites. Incentives should not lead to less protective clean-up standards, but could consider flexibility in restrictions on end land use.

Land Use and Zoning:

- Determine and articulate Cal/EPA's role in local and regional land use and zoning decisions.
- Collaborate with local governments to help them identify and address environmental justice issues, particularly as they relate to community planning, and locally undesirable land uses.
- Develop a list of obvious, high-impact project scenarios that should be avoided, and make this list available to local land-use planners.
- Collaborate with OPR to identify actions that local governments should consider to [or: "could take"] reduce impacts of pollution in communities identified as disproportionately impacted, such as:
    - ☐ *Creation of buffer zones around significant sources of risk;*
    - ☐ *Relocation of small sources away from residential areas or sites of sensitive receptors;*
    - ☐ ***(Option 1)** Prevention of siting of facilities that would increase the impacts of pollution on the disproportionately impacted community unless there are community validated findings of overriding considerations;*
    - ☐ ***(Option 2)** Examine mechanisms and tools to assist local government in siting criteria and design of facilities that would significantly increase the impacts of pollution on disproportionately impacted communities.*
    - ☐ *Adoption of stricter control and/or pollution prevention measures to reduce the overall emissions.*

  In implementing these actions, Cal/EPA should not place an unfunded mandate on local government and/or local programs.
- Collaborate with OPR on the development of land use and zoning guidance for municipalities, including:
    - Requirement for municipalities to demonstrate integration of environmental justice principles into general plans; and
    - Requirement for municipalities to adopt new land use and zoning laws which use a buffer zone or other measure to prevent the location of residences, schools, or other sensitive populations near sources of pollution.
- Require environmental justice and alternatives assessment as part of all new permitting, including:
    - Pursue amendments to CEQA to require meaningful alternatives assessment that addresses all alternative processes, methods and locations for new projects; and
    - Require cumulative impact analysis for new applications; and
    - Increase the role and authority of community residents via community planning groups or other entities that have a significant role in the permit decision-making process.

*Note to Committee #15: There are also concerns here similar to those about the precautionary additions to the Risk Reduction and Pollution Prevention section. In particular, the presumption that Cal/EPA (or even OPR) can require these actions of local governments has raised particular concern. Some of this language refers to "should consider" or "could take" as opposed to "must" or requirements. The committee should review whether the "must" is truly intended, or whether, in the interest of consensus,*

*strong direction, or even a "requirement to formally consider" certain actions would accomplish the objectives and be more consistent with existing authorities.*

**Program Enforcement**: In this context, Program Enforcement refers to the activities undertaken to ensure that regulated facilities, sites, entities, and/or users comply with the requirements that apply to them, including agency response to complaints from members of the public.

- Develop criteria for identifying and addressing EJ gaps in equal application of environmental enforcement efforts.
- Identify opportunities to utilize enforcement as a means to deliver the benefits of environmental protections to all communities.
- Review the frequency of routine inspections to ensure that inspections are timely and equitable.
- Ensure adequate and fair deployment of enforcement resources
- Track, evaluate, and when necessary, remedy potential race-related or income-related discrepencies in the enforcement of environmental programs.
- Adopt progressively more punitive measures against permit holders who repeatedly violate environmental laws or regulations.
- Provide periodic reports on inspections completed.
- Establish a Complaint Response protocol for each Cal/EPA BDO, including accessibility of complaint lines, language barriers, timeliness of response, investigation procedures, and feedback to the complainant.
- Provide periodic reports on complaints received and outcomes.
- Establish an auditing process to ensure the complaint response process is effective.

**Goal #3:** ***Improve research and data collection to promote and address environmental justice related to the health and environment of communities of color and low-income populations.***

The Committee heard significant comment from the public about the lack of available information regarding a wide range of issues of concern. In general, Cal EPA is mandated to improve research and data collection for all of its programs, in order to ensure environmental protection for all Californians. The knowledge gained through this effort will support environmental justice efforts. The Committee recognizes, however, that more information is needed that specifically addresses the health and environment of communities of color and low-income populations if the goal of environmental justice is to be ensured. In addition, community members need to have greater involvement in the research process if the data is to be meaningful and useful.

*Note to Committee #16: The Drafting Subcommittee was directed to incorporate successful criteria & warning indicators for this Goal. The Committee should review and revise the indicators as appropriate. Some comments suggested specific research activities as indicators, but it seemed more appropriate to keep specific activities as recommendations. The Committee should consider whether that is the direction it wants to take.*

The criteria that distinguish programs for research and data collection that have successfully integrated Environmental Justice objectives include:

- ☐ Systematic identification of data needs inside and outside of the agency, and prioritizing research objectives, including specifically articulated data objectives related to community-specific health, environmental and socio-economic indicators.
- ☐ Regular consideration of the outcomes of previous and ongoing projects that assess(ed) community-specific health, environmental, and socio-economic factors, in order to identify data limitations (such as lack, availability, quality, and/or format of data) that materially hindered the success of the project.
- ☐ Regular consultation with community groups and other interested parties to identify their data needs, interest in participation in data collection efforts, and concerns about data use, availability, and privacy.
- ☐ Consistent efforts to optimize and leverage research funding and other resources, including evaluation of single media or other focused research efforts to determine if a small addition of resources will allow the data gathered meet multiple objectives.
- ☐ Consideration of a wide range of data sources, and efforts to further develop/enhance these sources, with specific consideration of research efforts designed and implemented within the community.
- ☐ Periodic evaluation of program objectives, project grants, and data outcomes to ensure fair and equitable research, and that the needs, concerns, or specific factors affecting low-income populations and/or communities of color are not overlooked.
- ☐ Systematic process for compiling, indexing, and sharing existing data, within the agency and with outside stakeholders.

Research programs that have less successfully addressed environmental justice concerns may be indicated by the following:

- o Lack of coherent, integrated research and data collection plan.
- o Lack of data specific to low-income communities and communities of color, and the absence of data objectives in these areas.
- o Complaints from communities and other stakeholders regarding bias in research funding, objectives, or project design, data collection or reporting, or in conclusions based on research undertaken.
- o Complaints from communities and other stakeholders regarding access to data.

In order to facilitate review and discussion of the Committee's recommendations to address Goal #3, the Committee has grouped the recommendations into three broad categories. The categories are: (a) Data Collection, (b) Data Availability, and (c) Community-based Research.

Data Collection: These recommendations focus on ways to augment existing data, in order to better address environmental justice issues.

- In order to identify and address gaps in research and data collection, Cal/EPA should prepare a research plan for the entire agency. This plan should highlight projects that benefit multiple media and/or programs, and support leveraging and prioritizing of limited

resources. Projects related to Environmental Justice should be given high priority. The plan should be updated annually.

- Cal/EPA should also establish a clearinghouse, available on the web, for information associated with Environmental Justice.
- Develop, promote and support efforts to collect community and environmental data that will improve understanding of environmental justice problems, and lead to solutions and prevention of further problems.
- Consult with and provide greater involvement to community members prior to designing studies of the community.
- Support research into new or alternative means to reduce pollution and protect the environment.
- Support research into cumulative impacts from multiples sources of pollution, and through multiple media.
- Support research that includes biomonitoring and personal exposure monitors to help assess individual body-burdens for environmental contaminants.
- Support research that enhances data on the impacts of environmental contaminants on children, the elderly, and other vulnerable populations, including parameters to assess variables such as income and race.
- Collect data to support GIS-based, multi-media analysis of emissions sources, the places where people live and work, and the demographics of the people in those locations.
- Assess cultural impacts, and the development of more complete databases on affected cultural issues (such as sacred sites, subsistence fishing, language barriers, etc.).
- Enhance systems for consistent environmental data collection and application to ensure applicability of data to environmental justice issues.

Data Availability: The Committee heard many complaints that when research had been done, or data was thought to exist, it was not available to those who had need of it. These recommendations are meant to enhance the availability of data, and to recognize and respect the needs of community members who agree to participate in research efforts.

- Make data collected by the agency about communities available promptly to the communities it was collected from, and other stakeholders, without violating basic privacy rights (for example by releasing an individual's medical data).
- Make data availability to the participating community members and other stakeholders a condition of funding external research projects, where possible, but ensure individual privacy is respected especially with data relating to the individual health of a community member.
- Establish mechanisms to prevent abuse of data collected from communities.
- Promote collaborative efforts between federal, state, and local agencies towards sharing of data and information relevant to environmental justice.

Community-based Research: Community-based research is used here to describe research efforts where the community (rather than government) plays a lead role in designing, implementing, and analyzing the results of the study.

- Establish greater respect for the knowledge base within the community.

- Explore mechanisms to address concerns about data integrity, chain of custody, bias, etc., to enhance general acceptance of community-based research.
- Establish mechanisms to support community-based research projects (e.g., grants, loans, technical assistance, or collaboration), consistent with AB 2312.

**Goal #4:** ***Ensure effective cross-media coordination and accountability in addressing environmental justice issues.***

*Note to Committee #17: The Drafting Subcommittee was directed to incorporate successful criteria & warning indicators for this Goal. The Committee should review and revise the indicators as appropriate. Some comments suggested specific research activities as indicators, but it seemed more appropriate to keep specific activities as recommendations. The Committee should consider whether that is the direction it wants to take.*

Programs that have successfully integrated Environmental Justice goals across environmental media, and embody a sufficient degree of accountability are distinguished by the following criteria:

- ☐ Development, implementation, and periodic review of Environmental Justice policies, goals, and objectives.
- ☐ Use of Environmental Justice work plans with specific, measurable, and time-bound action items.
- ☐ Clearly articulated objectives and mechanisms to ensure that media-specific policies, goals, objectives, and action items relate logically to those for other media, including coordinated development and implementation, resource leveraging, and mutual accountability.
- ☐ Commitment of funding and other resources needed to implement Environmental Justice policies, goals, objectives, and action items.
- ☐ Periodic progress reports to agency management and external stakeholders, including communities, on program implementation.
- ☐ Active solicitation of program evaluation (successes and failures) by external stakeholders, including communities, and established mechanisms to adjust programs based on input received.

Programs that have less successfully integrated Environmental Justice goals across environmental media, or lack mechanisms for accountability may be indicated by the following warning signs:

- o Redundant or conflicting program elements.
- o Lack of awareness of related activities within separate media programs.
- o Expenditure of resources duplicating efforts of other agencies or entities.
- o Complaints from external stakeholders, including communities, that agency efforts are biased, fail to address Environmental Justice issues, or repeat past failures in spite of stakeholder input.

In order to facilitate review and discussion of the Committee's recommendations to address Goal #4, the Committee has grouped the recommendations into two broad categories. The categories are: (a) Cross-Media Coordination, and (b) Agency Accountability.

Cross-media Coordination: Coordination between media (such as air, water, waste, etc.) is an important aspect of Cal/EPA's overall function as an agency. These recommendations are intended to improved cross-media coordination and better support Environmental Justice efforts.

- Develop protocols for effective coordination within Cal/EPA, its Boards, Departments, and Office, including regional offices, on environmental justice issues.
- Examine mechanisms to ensure greater coordination with federal state and local agencies.
- Explore opportunities to develop environmental justice projects that can function as models for collaborative approaches on environmental justice issues (similar to projects supported by U.S. EPA in their National Environmental Justice Action Agenda).
- Establish a California Office of Pollution Prevention (or some other formalized, centralized multi-media group) to:
    a. Serve as a clearinghouse for information on less and non-toxic products and processes;
    b. Evaluate products and processes under consideration by municipalities and industries;
    c. Conduct research into new processes & products that could provide less toxic, or non-toxic alternatives for municipalities and industries;
    d. Provide support to municipalities, industries, and other entities seeking to implement the recommendations for Risk Reduction and Pollution Prevention identified under Goal #2.

Agency Accountability: Accountability is a critical part of effective implementation of any strategy. It was also identified, by many members of the public, that this is an area where improvements could be made.

- Ensure full consideration of these Advisory Committee recommendations by Cal/EPA and the Interagency Working Group, and provide a report from the Secretary of Cal/EPA to external stakeholders on the actions taken in response to these recommendations.
- Provide appropriate resources to carry out activities by Cal/EPA Boards, Departments and Office to address environmental justice issues.
- Develop performance measures to determine the success of environmental justice programs with review and input from EJ stakeholders.
- Promote periodic performance reports from Cal/EPA Boards, Departments, and Office, including regional offices, to external stakeholders.
- Ensure ongoing communication between Cal/EPA and external stakeholders.
- Clarify roles and responsibilities of federal, state, local, and (where applicable) tribal or Mexican governments/agencies with regard to environmental justice issues within the community.
- Ensure compliance with federal (Title VI of the Civil Rights Act) and state (CA Gov. Code 11135 in making environmental decisions.

## VI. Implementation of Recommendations

*Note to Committee #18: The Committee has not discussed the contents of this Section. In order to complete this section, the Committee must complete its core Recommendations, prioritize them, and establish reasonable next steps, and accountability. Alternatively, the Committee must eliminate those items that cannot be accomplished, or defer them to a separate effort.: Still needed, as of 4/21/03.*

a. Next Steps
b. Priorities
c. Timelines
d. Responsible Parties
e. Resources (funding and staffing)
f. Role of the Environmental Justice Advisory Committee

*Note to Committee #19: The following are suggestions for approaching the prioritization of action items:*

- *List action items that Cal/EPA has existing authority and direct responsibility to undertake.*
- *List action items where Cal/EPA's role is oversight and/or support of local governments who have primary jurisdiction.*
- *List action items where Cal/EPA's role is coordination with other state agencies who have primary jurisdiction.*
- *List action items that depend on new legislative authority for Cal/EPA or whichever entity will have primary responsibility for implementation.*
- *For each list above, create subcategories of action items that:*
  - *Are simply and readily implementable (i.e., do not depend on collection of additional data, completion of elaborate processes, or allocation of substantial, new resources etc.)*
  - *Involve longer term processes (i.e., development of policies or regulations) but for which there is sufficient data/authority, and therefore may be initiated immediately (or at some later time, depending on priority).*
  - *Require the development of tools or the collection of additional data.*
- *Within each subcategory, identify the three top priority actions.*
- *Recommend time-frames for accomplishing each of the top three items in each subcategory, including progress reports.*

- *Discuss, to the extent possible, responsible parties and resource issues for each of the "top three" items.*

## VII. Additional Recommendations

*Note to Committee #20: The Committee voted to cover these items in a separate report (or some other venue, exactly how is not clear to the Subcommittee at this time). Does the Committee want all reference to these items removed from the report (except the Land Use discussion which was covered in the main recommendations in Section V)? Note that Tribal issues are raised in the introduction and the Committee voted to include the background paper on Tribal issues as an Appendix; is that sufficient discussion? Is something needed here? Does the Committee want a general discussion of some of the more obvious and pervasive issues that have been brought to the Committee's attention, such as transportation impacts on communities, federal facilities, and farmworker concerns? This section was originally Titled "Additional Considerations" or something like that and was intended to provide a place to discuss issues that Cal/EPA does not have direct authority over. If we returned to that type of heading, we could go the discussion route without needing to have actual recommendations - sort of a "further work needed" bin.*

a. Land-Use Decision Making
    i. Office of Planning and Research
    ii. Local Land Use Planning Agencies
b. Transportation Infrastructure Decision Making
c. Other Agencies
d. Tribal Issues
e. Federal Issues
f. Statutory Changes
g. Other Recommendations

## VIII. Background Materials and References

*Note to Committee #21: The Committee has not discussed the contents of this Section. In order to complete this section, the Committee must outline the nature of the recommendations or observations to be included. Alternatively, the Committee must eliminate those items that cannot be accomplished, or defer them to a separate effort. The Committee should identify a reasonable mechanism to get each of the Appendices reviewed for accuracy and acceptable language. Still needed, as of 4/21/03.*

a. Appendix A: Responsible Agencies- Federal, State, and Local, Organized by Media
b. Appendix B: Responsible Agencies Contact List, Organized by County
c. Appendix C: Cal/EPA Boards, Departments, and Office
d. Appendix D: Cal/EPA Interagency Working Group
e. Appendix E: Cal/EPA Actions to Address Environmental Justice
f. Appendix F: Detailed History of Environmental Justice
g. Appendix G: Environmental Justice and Tribes
h. Appendix H: California State Law on Environmental Justice
i. Appendix I: Complete Summary of Public Participation in Drafting the Committee's Recommendations
j. Appendix J: References

**THREE PAPERS ON THE PRECAUTIONARY PRINCIPLE**

1. **"SCIENCE AND THE PRECAUTIONARY PRINCIPLE," SCIENCE MAGAZINE, MAY 2000 (2 PAGES)**

2. **"THE PRECAUTIONARY PRINCIPLE PUTS VALUES FIRST," BULLETIN OF SCIENCE, TECHNOLOGY & SOCIETY, JUNE 2002 (10 PAGES)**

3. **"OUR STOLEN FUTURE AND THE PRECAUTIONARY PRINCIPLE," REMARKS OF THE PRESIDENT OF THE AMERICAN COUNCIL ON SCIENCE AND HEALTH, JUNE 1996 (3 PAGES)**

POLICY FORUM: RISK MANAGEMENT

# Science and the Precautionary Principle

Kenneth R. Foster,* Paolo Vecchia, Michael H. Repacholi

Few policies for risk management have created as much controversy as the Precautionary Principle. Emerging in European environmental policies in the late 1970s (*1*), the principle has become enshrined in numerous international treaties and declarations. It is, by the Treaty on European Union (1992), the basis for European environmental law, and plays an increasing role in developing environmental health policies as well.

Despite its seemingly widespread political support, the Precautionary Principle has engendered endless controversy, in part because critics have interpreted "precautionary" decisions as veiled forms of trade protectionism. Recent examples are disputes resulting from "precautionary" decisions to ban American and Canadian beef (because of the use of growth hormones) and to delay approving genetically engineered crops for sale in European markets.

But its greatest problem, as a policy tool, is its extreme variability in interpretation. One legal analysis (*2*) identified 14 different formulations of the principle in treaties and nontreaty declarations. The Treaty on European Union merely refers to the principle, without defining it. Despite a growing body of case law, including important decisions by the (European) Court of Justice, the legal community remains divided about the meaning and applicability of the principle (*3*).

In its "strongest" formulations, the principle can be interpreted as calling for absolute proof of safety before allowing new technologies to be adopted. For example, the World Charter for Nature (1982) states "where potential adverse effects are not fully understood, the activities should not proceed." (*4*). If interpreted literally, no new technology could meet this requirement (*5*).

**GUIDELINES FOR APPLICATION OF THE PRECAUTIONARY PRINCIPLE***

| | |
|---|---|
| **Proportionality** | "Measures...must not be disproportionate to the desired level of protection and must not aim at zero risk" |
| **Nondiscrimination** | "comparable situations should not be treated differently and... different situations should not be treated in the same way, unless there are objective grounds for doing so." |
| **Consistency** | "measures...should be comparable in nature and scope with measures already taken in equivalent areas in which all the scientific data are available." |
| **Examination of the benefits and costs of action or lack of action** | "This examination should include an economic cost/benefit analysis when this is appropriate and feasible. However, other analysis methods...may also be relevant" |
| **Examination of scientific developments** | "The measures must be of a provisional nature pending the availability of more reliable scientific data"... "scientific research shall be continued with a view to obtaining more complete data." |

*EC Commentary, 2 February 2000

Other formulations open the door to cost-benefit analysis and discretionary judgment. For example, the Rio Declaration (1992) says that lack of "full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation" (*6*). Still other formulations call for decisions in the absence of any scientific evidence at all: A 1990 declaration on protection of the North Sea calls for action to be taken even if there is "no scientific evidence to prove a causal link between emissions [of wastes onto ocean waters] and effects" (*7*).

An issue of particular interest to scientists is the relation, if any, of the principle to science-based risk assessment. The principle was initially applied to environmental issues, such as ocean dumping of pollutants, that are characterized by sparse scientific data useful for making policy. Its use has now expanded to protection against environmental health risks, for which extensive toxicological and epidemiological data are often available, notwithstanding gaps and inconsistencies in the evidence. The question arises how to reconcile the principle with the weight of evidence analysis typically used by scientists and health agencies. Recent "precautionary" policies regulating human exposure to radio frequency (RF) fields, such as those produced by communications and broadcasting transmitters, show that there need not be a conflict between the two. This case history is interesting because it involves more nuanced policy options than simple bans of new technologies.

## Regulating Exposure to Radio Frequency Fields

The possible health effects of RF energy have been studied since World War II, and several thousand bioeffects studies and relevant engineering studies are in the literature. National and international exposure guidelines (*8*, *9*) offer a high level of protection against established hazards of RF energy. These guidelines apply to long-term and short-term exposures of the general public and workers. They were based on a painstaking evaluation of the relevant scientific literature, but do not directly consider cost-benefit analyses or issues of risk acceptability.

These guidelines, however, are based on a literature that is unclear and controversial in many respects. A large number of biological effects of RF energy have been reported, some at low exposure levels, many of which cannot be independently confirmed. Several epidemiological studies have reported weak associations between exposure to RF fields and risk of various diseases including cancer, but these have technical flaws (principally, inadequate exposure assessment) (*10*). No major scientific review panel in the United States or Western Europe has concluded that low-level exposure to RF fields actually causes health problems.

Yet there has been substantial public concern about health effects from exposure to RF fields, causing widespread and often emotional opposition to the siting of cellular telephone base stations. The RF exposure levels to the public from such facilities are invariably far below international exposure guidelines (*11*).

K. R. Foster is usually at the Department of Bioengineering, University of Pennsylvania, Philadelphia PA 19104, USA; he is now on sabbatical at World Health Organization (WHO), Geneva, Switzerland. P. Vecchia is at the National Institute of Health, Physics Laboratory, Istituto Superiore di Sanità, I-00161 Rome, Italy. M. H. Repacholi is at the Department of Protection of the Human Environment, WHO, Geneva, Switzerland.

*To whom correspondence should be addressed. E-mail: kfoster@seas.upenn.edu

In response, several countries have adopted precautionary measures to limit public exposure to RF fields. In 1998, Italy introduced "cautionary" limits that are as low as one-hundredth of international guidelines. Switzerland followed in 1999 by instituting similarly low RF exposure limits for "sensitive-use areas" (such as residential areas, schools, and hospital wards) and banning new construction in areas in which the precautionary limits are exceeded (*12*). Both limits are somewhat above exposure levels from most cellular base stations but are far below exposure levels from many other RF sources in the environment, including television and radio transmitters. The Swiss limits were based on the lowest levels that were deemed economically and technically feasible. They do not apply to industrial and medical equipment, or even mobile telephone handsets themselves, which are all sources of far higher exposure than cellular base stations.

New Zealand took a different precautionary approach in 1999 when it issued RF exposure standards that follow the international guidelines. The Ministries of Health and Environment considered the limits to "provide adequate protection" but recommended "...minimizing, as appropriate, RF exposure which is unnecessary or incidental to achievement of service objectives or process requirements, provided that this can be readily achieved at modest expense" and called for industry to reduce community concern through nonregulatory approaches (*13*).

These two approaches differ sharply; in one case, by setting mandatory exposure limits for precautionary reasons and, in the other, by supplementing international limits with precautionary policies aimed at improving the public acceptability of new RF transmitters. The latter is clearly more consistent with traditional approaches to setting exposure limits and is easier to apply in a consistent way to the diverse sources of RF energy in modern society. None of these precautionary approaches were based on any newly identified hazard from low-level exposures.

### Guidelines for Use

The elusive nature of the Precautionary Principle and the potentially high stakes involved (an industry press release claimed that the new Swiss limits would cost 1 billion Swiss francs) make it important to clarify its use. A recent communication by the European Commission (*14*) is an important and (by virtue of its official source) influential contribution intended to ward off arbitrary use of the principle (*15*).

From the point of view of science-based risk assessment, the document is conventional and reassuring, relying for much of its intellectual framework on the famous 1983 "red book" of risk assessment (*16*). The communication stresses the need for "reliable scientific data and logical reasoning." Before "triggering" the use of the principle, it requires identification of a potentially hazardous effect, with "all effort" being made to "evaluate the available scientific information," "leading to a conclusion which expresses the possibility of occurrence and the severity of a hazard's impact on the environment, or health...." The analysis must also include an assessment of the uncertainties in the scientific data. It stresses the wide range of actions that may be taken under the principle, including no action at all. Perhaps more importantly, the communication provides five guidelines for using the principle in a politically "transparent" manner (see the table on page 979).

These recommendations are explicitly aimed at risk management, and the communication stresses that decisions to act (or not) are essentially political. Viewing the Precautionary Principle as part of a process for making provisional decisions about risk management under uncertainty would reduce criticism from its more fervent critics or advocates for more extreme interpretations of it.

Clear guidelines are still lacking for the weight of evidence needed to trigger the principle, and for deciding which of the large range of precautionary measures should be applied in given circumstances. Different standards of proof seem to be needed to invoke the principle than for other regulatory actions—but how much different are they? Can one justify using the principle to limit public exposure to RF energy to levels far below the threshold for established hazards to address public concerns on the basis of scientific data that major scientific review committees find unpersuasive of a hazard? Conversely, how much evidence of safety should proponents of a new technology be required to provide? Such issues will generate endless controversy and, indeed, may only be settled by litigation (*17*).

Although some standard of proof is needed, it need not be as high as scientists themselves might wish. For example, in the United States (where few if any laws cite the Precautionary Principle) courts have upheld the ability of government to base regulatory decisions on substantial evidence that is "less than a preponderance, but more than a scintilla" (*18*). This does not preempt the need for basing decisions on a careful analysis of the relevant scientific data—which clearly has not occurred in some applications of the principle.

However it is applied, the Precautionary Principle is enshrined in international law, and it is destined to remain a permanent fixture in environmental and health protection. It makes sense to find ways to use it appropriately. By providing guidelines for use of the principle in a politically transparent process, while emphasizing the need for a careful review of scientific data, the EC commentary may help reduce the contentiousness of its application. The Commission certainly leaves a role for science in the process.

### References and Notes


1. However, one authority traces its use back to 1854, in the famous incident when John Snow removed the pump handle from a London well, "curing" a cholera epidemic in the neighborhood. D. Gee, *Financial Times* (London), U.S. ed. 2, 16 December 1999, p. 14.
2. D. Vanderzwaag, *J. Environ. Law Pract.* **8**, 355 (1999). See also www.ec.gc.ca/cepa/ip18/e18_00.html
3. *D. Freestone and E. Hey, Eds. Intl. Environ. Law Policy Ser.* **31** (1996).
4. World Charter for Nature, U.N. GA Resolution 37/7 (1982).
5. One wag has suggested that the Precautionary Principle should be applied (presumably in a strong form) to the use of the Precautionary Principle, which would result in no action—a good or bad thing, depending on one's point of view.
6. Rio Declaration on Environment and Development, 13 June 1992 (U.N. Doc./CONF.151/5/Rev.1).
7. *Declaration of the Third International Conference on* the Protection of the North Sea (Preamble) (1990).
8. International Commission on Non-Ionizing Radiation Protection (ICNIRP), *Health Phys.* **74**, 494 (1998).
9. IEEE (Institute of Electrical and Electronics Engineers) Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz, IEEE Std. C95.1, 1999 Edition.
10. J. M. Elwood, *Environ. Health Perspect.* **107** (Suppl. 1), 145 (1999).
11. Maximum levels of RF exposure to the public from typical cellular base stations are about 1 μW/cm, a factor of about 500 below U.S. regulatory limits at 850 MHz (which generally follow the IEEE C95.1 standard). Cellular base stations transmit at similar power levels as police, fire, and other emergency communications systems and paging systems, and far below those of commercial radio and television broadcasting transmitters.
12. Swiss Bundesrat, Decree Concerning Protection from Non-Ionising Radiation (NISV). See www.admin.ch/ch/d/as/2000/213.pdf [in German].
13. For discussion see New Zealand Ministry for the Environment, Ministry of Health, "Towards national guidelines for managing the effects of radiofrequency transmitters: A discussion document," Wellington, New Zealand: Ministry for the Environment. See www.mfe.govt.nz/about/publications/rma/draft_rf_guidelines.pdf
14. Commission of the European Communities, Communication on the Precautionary Principle, Brussels 02 February 2000. See http://europa.eu.int/comm/off/com/health_consumer/precaution.htm
15. The commentary does not have binding status as would a regulation or a directive (which are EU "laws"), but is a general guidance as to the basis of future Commission decisions. Most countries mentioned in this Policy Forum are not part of the EU, and the commentary would have only an indirect impact on them.
16. National Research Council, *Risk Assessment in the Federal Government: Managing the Process* (National Academy Press, Washington, DC, 1983.
17. Only limited case law exists on the principle. A recent decision by the European Court of Justice upholds a ban on the export of British beef into EU countries: "[I]n view of the seriousness of the risk [of bovine spongiform encephalopathy] and the urgency of the situation, the Commission did not react in a manifestly inappropriate manner by imposing, on a temporary basis and pending the production of more detailed scientific information, a general ban on exports of bovine [products]." Case E-180/96, *United Kingdom of Great Britain and Northern Ireland v. Commission of the European Communities*, 5 May 1998. See europa.eu.int/cj/en/jurisp/index.htm
18. *Cellular Telephone Company v. Town of Oyster Bay*, 166 F.3d 490, 494 (2d Cir. 1999).

# *The Precautionary Principle Puts Values First*

**Nancy Myers**
***Science and Environmental Health Network***

*The precautionary principle is an emerging principle of international law but has only recently been proposed in North America as a new basis for environmental policy. On the surface it is a simple, commonsense proposition: in the face of possible harm, exercise precaution. But the enthusiasm the principle has stirred among public advocates suggests it has a deeper appeal. It is, in fact, based on values related to "forecaring for life" and the natural world. The principle cannot effectively be invoked without stating these values up front. The principle makes it clear that decisions and developments in science and technology are based first of all on values and only secondarily on scientific and technological fact and process. Moreover, a precautionary approach is best carried out in the context of goals that embody the values of communities and societies.*

***Key words:*** *Precautionary principle, environmental ethics*

Since September 11, 2001, the notion of precaution has taken a prominent place in the consciousness of Americans. That tragedy has stirred dread of further tragedies, great and small; it has exposed our ignorance of the complex processes that are behind such unthinkable actions; and it has left us far more wary of many things than we were before. Along with the grief and anger stirred by the attacks has come a renewed impulse for prudence. Americans have received a large dose of unwelcome lessons in becoming more careful, more attentive to their surroundings.

In such a situation, precautionary action represents the normal human instinct for self-preservation. Some of the actions in the wake of the disaster have been extreme and somewhat less than rational: buying gas masks and antibiotics that may or may not offer protection when and if people need them, and then only against the smallest fraction of the unlikeliest forms of attack. Other actions have made more sense. Greyhound bus service was stopped nationwide for 6 hours on October 3 after an attack on a driver precipitated a fatal accident. When it became clear that the attack was a case of random rather than organized derangement, service was resumed.

In all cases, we have had to think about how to act in the face of the unknown. Americans have become less carefree and careless. When we recognize a course of action that might offer some protection or represent prudence, we consider it seriously, even if it requires giving up something we cherish or take for granted, such as our freedom of movement.

All this has some parallels to the precautionary principle, that is, to precaution applied to environmental policy. Both proponents and critics of the precautionary principle, in fact, have often assumed that the principle represents simply a statement of this normal human instinct to act with caution, or take precautions, in the face of poorly understood danger. Proponents have pointed out that it only makes sense to act with prudence to keep from harming ourselves and the Earth through our own technologies. Critics have pointed to all the cherished things, such as free-ranging technical creativity, that would presumably be given up by such prudence, and they have claimed that prudence taken to the extreme leads to paralysis (Myers, 2000).

Both points of view have their place, and the precautionary principle certainly has to do with taking precautions. But it is about something more as well. That "something more" is behind both the enthusiasm with which the principle has been embraced in certain quarters and the vehemence of the opposition to it in others. It has to do with values. When set in the context

Bulletin of Science, Technology & Society, Vol. 22, No. 3, June 2002, 210-219

of the values it represents and requires, the precautionary principle becomes something other than a cautious shrinking from danger. It becomes a powerful agent of change.

## What Is the Precautionary Principle?

The precautionary principle[1] originated in Germany more than 20 years ago, when private landowners noticed that their treasured forests were dying. They appealed to the government to do something about the tragedy. Germany began an all-out effort to cut back power plant emissions that were producing acid rain, in an effort to save the Black Forest. Later, that urge to protect and prevent was translated into a formal principle of German law, the *Vorsorgeprinzip*. In the years that followed, it was enshrined in international law as the precautionary principle (Raffensperger & Tickner, 1999).

Each version of the precautionary principle is based on three core elements: potential harm, scientific uncertainty, and precautionary action. The most influential statement of the principle is no doubt the one contained in the 1992 Rio Declaration on Environment and Development:

> In order to protect the environment, the precautionary approach shall be widely applied by States according to their capabilities. Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation. (SEHN, 2002)

Until recently, the United States officially supported most of the international accords that include the precautionary principle. However, in the past several years, strong opposition has developed to the principle in U.S. industry and in government agencies supporting commerce. In January 1998, SEHN convened a small gathering of activists, scientists, and policy makers to discuss using the precautionary principle as a basis for reforming environmental policy in the United States. The statement produced by this gathering, the Wingspread Statement, included this now widely cited definition of the precautionary principle: "When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause-and-effect relationships are not fully established scientifically." (SEHN, 2002)

The Wingspread Statement went on to define three additional components of the principle's application:

> In this context the proponent of an activity, rather than the public, should bear the burden of proof. The process of applying the Precautionary Principle must be open, informed, and democratic and must include potentially affected parties. It must also involve an examination of the full range of alternatives, including no action. (SEHN, 2002)

These components—shifting the burden of proof; assessing alternatives; and transparent, democratic action—had often appeared as part of or alongside the precautionary principle in international treaties and various national policy statements. The Wingspread Statement brought them together and thus defined not only the principle itself but something of the way in which it was to be applied.

The Wingspread conference and its aftermath introduced the precautionary principle for the first time to, among others, those members of the U.S. activist community who had been less involved with international affairs. The idea quickly took on a momentum of its own. Discussions, statements, and implementation efforts on the principle began springing up across the country. For example, a statewide precautionary principle project was launched in Massachusetts; Marin County, California, and other localities debated precautionary principle resolutions; Harvard University held forums; the United Methodist Church issued a statement; Canada considered clamping down on lawn chemicals on the basis of the principle; and Minnesota conducted inquiries on incorporating it into public health planning.

The spread of the precautionary principle in the United States is not coordinated in a single campaign and is therefore difficult to quantify and track. It is clear, however, that the demand for information about the principle and how to use it has grown exponentially in the past 4 years. In a recent 12-month period, for example, the small staff of SEHN, which has continued precautionary principle work, gave about 100 presentations and media interviews related to the precautionary principle. Most of these were by invitation and reached audiences that included activists who were eager to take the idea and run with it, and did so.

Books, articles, and fact sheets published on the principle continue to be in high demand and generate enthusiastic response.

Meanwhile, widening support for the precautionary principle led to its inclusion in the body of two more environmental treaties, both completed in 2000: the Biosafety Protocol, dealing with the spread of living modified organisms, and the Treaty on Persistent Organic Pollutants. Opposition to including the precautionary principle, led by the United States, was strong. Nevertheless, the principle appears in these treaties as an enforceable measure for the first time. In previous agreements, it has appeared only as an instruction or guideline.

## Why the Principle Appeals

Activists' and advocates' responses to the principle and their explanations of why it has become important and useful to them vary. Almost universally, however, they see it as an exercise in something beyond caution, or even precaution. It is not just a matter of buying up gas masks, so to speak, or reinforcing cockpit doors. They nearly always describe it instead in positive terms. Activists who have become discouraged by the Sisyphean task of trying to protect the Earth and the health of communities in the face of out-of-control technologies and damage often say that the precautionary principle gives them hope. They say it is something positive to work for and that it embodies common sense. Organizers and policy advocates alike express gratitude for a unifying idea that makes sense of everything they are trying to work for and that removes some important barriers to that work, at least in their own minds. Inevitably, values creep into these discussions.

A typical range of responses came from a group of ecosystem scientists and advocates assembled by SEHN in May 2001 in Leavenworth, Washington, to discuss how the principle might apply to decisions related to ecosystems. After more than a day of discussion that went straight to the principle's practical implications, the group was asked, Is the precautionary principle indeed of use to you? Some of their answers had an equally practical tone:

> By using precaution you articulate uncertainties that are already there. It is better to think out consequences. It is important science, but it is also an important public education tool.
>
> It helps people understand what to do with uncertainty.
>
> It is an organizing principle in theory—it takes our ideas and make sense of them—and in practice: it can galvanize a movement.

A community organizer who works on forestry issues said that the principle is ideal for those who deal with federal agencies as long as it is presented as a useful way of making decisions, not a regulatory requirement.

But the Leavenworth participants also spoke of the principle's deeper appeal. The leader of an urban ecosystem restoration campaign spoke first of the practical importance of articulating principles and plans to stir research; bring in money; give managers guidance; and produce the influential books, articles, and conferences needed for a successful campaign. But, he added, the precautionary principle "inspires people with hope. . . . This is a positive approach."

A marine biologist mentioned values: "We value that which we've lost or are about to, or is in short supply. We are willing to take more extreme measures to protect it."

A community organizer said that the principle is the "articulation of an ethic that implies responsibility. We have our Bill of Rights but we haven't focused on our responsibilities—and our reciprocal obligations to the universe."

After some discussion, the group insisted on inserting a new item into the meeting agenda, which had been geared toward practical considerations and outcomes. The participants wanted to make a statement that expressed their deep reasons for espousing the precautionary principle and the place the principle held in the constellation of values by which they lived and worked. The participants wanted to say, for public record, what they believed and held dear.

The Icicle Creek Statement drafted at Leavenworth (SEHN 2002) is similar to another statement issued in November 2000 by a group convened to articulate an environmental ethic: the set of values served by the precautionary principle and out of which it arises (see the Appendix).

## Putting Values up Front

What is the significance of this impulse to talk about values, and what does the precautionary principle have

to do with it? Talking openly about values is a relatively recent development in the established environmental movement, which has long been accustomed to "leaving values at the door," often under explicit instruction from agency officials and industry representatives, and confining discussions to "the facts" or "science" or "sound science."

One of the scientists at the Leavenworth gathering said that although the precautionary principle is seen by some as antiscience, in his view, it is not about science at all. "The judgments we make are value laden. It gives us a framework in which to interpret science."

This response is similar to a refrain that has appeared in some recent writing on science and advocacy: State your values up front, because decisions and developments in science and technology are based first of all on values and only secondarily on scientific and technological fact and process per se.

> With regard to decisions about public issues, expertise in terms of skill, knowledge, or experience is often less important than basic questions of values. Is abortion wrong? Is it moral to deny medical care to a child whose parents have no health insurance? Should murderers be put to death? Is it acceptable to perform medical experiments on human beings without their consent? There are no scientific answers to these questions, or thousands more like them. They can only be answered by asking ourselves what we believe and what we value. In addressing these questions, finding knowledgeable experts is actually less important than finding experts who share our values. (Rampton & Stauber, 2001, p. 297-8)

In the preface to *Pandora's Poison: Chlorine, Health, and a New Environmental Strategy*, Joe Thornton (2000) made this declaration:

> No analyst of policy can be truly objective, because the process of weighing options for social action always filters the findings of science through a set of political and ethical assumptions and values. With that in mind, I have tried to do two things: to make explicit the ethical and political views that undergird my own evaluation of the science and to be as fair as possible in my presentation of the scientific evidence. I cover what I believe to be the most important information relevant to the case I am making and evaluate its strengths and weaknesses, but I do not claim balance or objectivity, because these are neither appropriate nor possible in this kind of effort. (p. ix)

Hugo Alroe and Erik Kristensen (in press) described the need for scientists to recognize the value system within which they work and to observe and describe it as objectively as, and alongside, the research itself:

> An overall distinction between the system and its environment needs to be made— the system has to be identified as an object of observation. This first movement also involves the determination, or at least presumption, of certain goals and values upon which the choices and delimitations that need to be made in planning and initiating research, can be made. The ensuing observations are thus based on these value-laden choices.

The precautionary principle has many practical uses and applications. But both its instinctive appeal and the sharp criticism it evokes have less to do with practicalities and more to do with the fact that it brings values to the forefront of discussion. Invoking the precautionary principle is an acknowledgement that policy choices are value laden, and it is an explicit endorsement of certain values.

The precautionary principle embodies certain values; it exposes the contradictory values that currently govern decision-making processes; it can be effective only if certain values are allowed to enter into the decision-making process. Moreover, the principle may be most effective if specific values, in the form of goals, are allowed to guide the entire process from beginning to end.

## What the Precautionary Principle Is up Against

Activists understand the principle and how it should work almost instinctively, and they find it easy to explain to fellow citizens, partly because precautionary action is a normal human response (as following the September 11 attacks). The biggest difficulty in that regard, a recent exercise by the Massachusetts Precautionary Principle Project revealed, is that many of the activists' fellow citizens believe that something

like the precautionary principle already governs environmental policy in the United States.

It does not, of course. Although that may have been the original intent, the systems that have evolved in the United States and elsewhere to protect humans and the environment have not been doing their job. Humans have been routinely leaping without looking, and right into dire messes. How big these messes have become was outlined by the zoologist Jane Lubchenco in her parting speech as president of the American Association for the Advancement of Science (Lubchenco et al., 1998). Her eloquent litany, which has been widely quoted since, sums up the case against "assimilative capacity": the notion that the Earth has a certain capacity to assimilate damage and that humans have not yet pressed those limits:

> Between one-third and one-half of the land surface has been transformed by human action; the carbon dioxide concentration in the atmosphere has increased by nearly 30% since the beginning of the Industrial Revolution; more atmospheric nitrogen is fixed by humanity than by all natural terrestrial sources combined; more than half of all accessible surface fresh water is put to use by humanity; about one-quarter of the bird species on Earth have been driven to extinction; and approximately two-thirds of major marine fisheries are fully exploited, over exploited, or depleted. (p. 491)

How have we gotten to this state? Part of the explanation is that neither international environmental agreements nor national regulatory systems seem capable of keeping up with the increasing pace and cumulative effects of environmental damage. It is not enough to focus on cleaning up messes after the fact, what environmentalists call "end-of-pipe" solutions. Scrubbers on power plant stacks, catalytic converters on tailpipes, recycling, and supersized funds dedicated to detoxifying the worst dumps are not enough, nor is it enough to address problems only after they have become so obvious that they cannot be ignored; often, literally waiting for the dead bodies to appear.

Another important part of the explanation, however, is that after responding to the initial burst of concern for the environment in the 1960s and 1970s, the U.S. regulatory system and others like it have been subverted by commercial interests, with the encouragement of political leaders and, increasingly, the complicity of the court system. Economic interests have fought for and regained ascendancy. Environmental laws were subjected to an onslaught of challenges throughout the 1980s and 1990s; many were modified or gutted, and all were enforced by regulators who were chastened by increasing challenges to their authority.

Moreover, commercial interests were reinforced and expanded globally in the last years of the century, culminating in sweeping, enforceable agreements that give unprecedented leeway to international commerce. The World Trade Organization, established in 1995, and the 1997 North American Free Trade Agreement institutionalized, on a multinational scale, the ascendancy of commerce over environmental and public health concerns (Wallach & Sforza, 2000).

One tool that has proved highly effective in the battle against environmental regulations is quantitative risk assessment, which became standard practice in the United States in the mid-1980s and was institutionalized in the global trade agreements of the 1990s. Risk assessment presents numbers that purport to state definitively how much harm might occur. It then becomes incumbent on laws and those who enforce them to decide how much harm is acceptable. Risk assessment not only provides the answers; it dictates the questions (O'Brien, 2000).

Commercial and industrial interests have been increasingly able to insist that harm must be proved "scientifically," in the form of a quantitative risk assessment demonstrating harm in excess of acceptable limits, before action is taken to stop a process or product. These exercises have often been linked with cost-benefit assessments, which give much weight to immediate monetary losses from regulations and little, if any, weight to costs to the environment or future generations.

This process—determining acceptable limits of harm, putting numbers to possible harm, and quantifying the costs of taking action to prevent harm—is called sound science by those who use it. It is indeed based on important scientific tools, but it has placed a heavy burden on those tools, requiring sure answers from an inherently inexact process. Consequently, quantitative risk assessment is subject to manipulation and riddled with disguised uncertainties.

The effect has been to give the benefit of the doubt to products and technologies and their proponents. Thus, a process that is promoted as objective and value free is actually based on a specific value system: one that places economics above other considerations.

## A Contest of Values

The precautionary principle serves a different set of values, more or less along the lines of those articulated in the Blue Mountain statement: what Joe Thornton (2000) called the ecosystem paradigm, in contrast to the risk paradigm. People who hold these values are likely to have little difficulty accepting the principle, whether as a practical tool to be applied in specific instances or as an overarching guide to human behavior in relation to the environment. Those who have a strong stake in putting economics first, on the other hand—whether in regard to a specific product, technology, or activity in which they have a stake or in the interest of protecting an entire economic system—are likely to find the precautionary principle threatening.

This plays out on one level as a challenge to cherished norms and taboos that govern U.S. policy: the injunction to "leave values at the door" and "restrict discussions to science," the priority given to free trade and technological development of any kind, the prejudice against social planning. A precautionary approach exposes and stands in contrast to the values that have implicitly, but seldom explicitly, governed decision making.

It is little wonder, then, that the Chlorine Chemistry Council identified the precautionary principle as the greatest emerging threat to that industry as early as 1994 (Rampton & Stauber, 2001) or that precautionary principle advocates are attacked regularly and vehemently. In one recent month, for example, these warnings appeared:

> The precautionary principle is a lethal weapon aimed at today's most innovative products and most promising scientific breakthroughs. (Cohen, 2001).

> Radical environmental groups brandishing the precautionary principle have prevailed upon governments in recent decades to assail and intimidate the chemical industry and, more recently, the food industry. (Miller & Conko, 2001).

The headline of a memo to public relations firms after Hudson, Quebec, banned lawn pesticides on the basis of the precautionary principle read, "One small town destroys major portion of a national pesticide market: seven lessons for PR, marketing and branding folks" (ePublic Relations, 2001).

Besides challenging the sensibilities of the chemical industry, a precautionary process or approach does embody certain values that run counter to the economics-first paradigm. In the precautionary process outlined in the Wingspread Statement, the most explicit embodiment of value or ethics lies in "burden shifting." Who or what gets the benefit of the doubt: products or the people they might harm? Perpetrators or possible victims? The advance of technology or the survival of ecosystems? Burden shifting, sometimes called burden of proof, burden of safety, or burden of responsibility (Tickner, 2000), is one of the least defined aspects of a precautionary approach. But the aim of including it is clear: to give the benefit of the doubt to life over technology when the latter is likely to harm the former.

Democracy and transparency in the decision-making process also represent an ethical component: the right to know, the right to be included in decisions that affect one, the duty to include all who are affected. Including such ethical considerations is a statement of values. But this kind of process also has a practical aspect. The more information gathered from varied sources, the more satisfactory a decision is likely to be.

So too is the assessment of alternatives (O'Brien, 2000). It makes practical sense to look at alternatives, to seek better ways of doing things, to be able to choose among different possible methods and outcomes rather than being locked into the dictates of things as they are or some inevitable march of progress and technology. However, deciding what is "better" depends on the values that guide the process.

The precautionary principle and the process of applying it by no means eliminate the value of economics from the equation. Any "democratic and transparent" process must include economic considerations. However, deliberately and consistently putting economics first leads to a different kind of precaution, a kind that is routinely exercised at the expense of the life and health of humans and ecosystems. This is a value judgment. It makes a difference which values guide a decision.

## Forecaring

*Precaution* is perhaps too generic a term. Precaution can indeed be applied at opposite ends of the spectrum, guided by entirely different goals. In fact, some-

thing was lost in the translation from the German term *Vorsorgeprinzip* to "precautionary principle" that might have reduced such confusion. The term *Vorsorge* is more value laden than the term *precautionary. Vorsorge* means, literally, "forecaring." *Vorsorge* carries the notion of preparing for a difficult future, like buying extra food and candles before a blizzard. It is proactive, whereas precaution seems to be a reactive stance. Thinking, worrying, and caring about the future call not only for taking protective and preventive measures but also for active planning, a commitment to the future of the Earth and the beings that live on it. On the basis of this notion, Germany, Sweden, Denmark, and other countries have begun to set goals for the kind of life they want to make available for future as well as present generations.

The precautionary principle, or forecaring, gives us a way to change our behavior, personally and collectively. It reminds us to acknowledge our mistakes, admit our ignorance, and act with foresight and caution to prevent damage. It also removes the barriers to that kind of precautionary action.

The precautionary principle singles out scientific uncertainty because it so happens that scientific uncertainty has often been the key argument against protective action: Let's wait until we know for sure how much human activity is influencing the climate before we make any changes. Let's find out exactly what levels of arsenic in drinking water are unsafe before we set stricter standards (Myers & Raffensperger, 2001 ).

The precautionary principle calls for the humble recognition that the world is full of scientific uncertainties. The Earth is made of complex, interrelated systems, vulnerable to harm from human activities and resistant to comprehensive understanding. Precaution is an expression of values that give priority to these vulnerable systems, including human bodies.

## Putting the Precautionary Principle to Work

All this would seem to pose a daunting challenge for communities and concerned citizens. Applying the precautionary principle means translating those values into policy, practices, laws, and lifestyles. Implementing the precautionary principle has indeed proved challenging. However, the greatest difficulties may be the result of a failure to recognize the extent to which the principle runs counter to the current value system, especially that operating in the United States. Recognizing and building from the primacy of values may offer a better solution.

The European Union's (EU) effort to use the precautionary principle in the international trade arena is a cautionary tale (Wallach & Sforza, 2000). The caution is that taking the principle out of its value context makes it extremely difficult to apply.

Within the EU, the precautionary principle has been a useful tool for dealing with a narrow range of circumstances. It is not so much a rigid rule as a rule of thumb: When there is reason for concern, go slow, take some kind of preventive action until you have better information, and give consumers a say. This is consonant with a value system in which economics figure large but not always supreme. Throughout the EU, a social consensus has arisen around quality of life that includes many factors: culture, environment, health, aesthetics, and so forth, as well as economic prosperity. The precautionary principle has been a minor pillar buttressing this consensus. Governments have become accustomed to gauging decisions to political as well as scientific and economic realities, taking into account this consensus on the broad range of social goals. The precautionary principle is one policy instrument in this approach.

However, in the international trade arena, economics are the first and nearly the only consideration. There is little room for either rules of thumb or the accommodation of a particular society's political will. As many analyses have made clear, the rules are rigid, and they are geared to removing obstacles to trade. As a result, the EU has had to accept trade sanctions and pay fines rather than import hormone-fed beef, which European consumers clearly do not want because they do not believe it is safe. Invoking the precautionary principle did not help. And the EU has had to engage in years of negotiations to gain any freedom at all to choose whether or not to import genetically modified organisms, for similar reasons.

In these controversies, the arguments have boiled down to what is safe and unsafe, who decides, how much scientific evidence is needed to prove safety or harm, and whether all these arguments are really about something else: economic competition, for example. And they have gone on for years.

## Beginning With Harm . . .

Activists in the United States may face similar difficulties if they choose to use the precautionary princi-

ple primarily as a way to set different—that is, more conservative, more protective—standards of harm, without considering the value system in which they operate. In a recent speech to a conference on science and the precautionary principle, Mary O'Brien outlined the differences between beginning with harm and beginning with goals that embody values.

The first approach, a "harm-driven process," examines a proposed or ongoing activity for some evidence of potential harm. If there is some likelihood of harm, the precautionary principle comes into play; alternatives are examined, responsibility is allotted (burden of proof), and the voices of all concerned are heard. A logical consensus is reached, a decision is implemented, and its consequences are monitored.

Although this all seems quite logical, imagine how this process works in a given community or around a given issue. Who decides what is harmful, whether harm is likely, and how likely? Who decides to invoke the precautionary principle? Who examines the alternatives and allots responsibility, especially if moral responsibility may differ from legal responsibility? At every step of the way, the usual resistance will be encountered and the customary confrontations are likely to take place: city fathers versus citizens, factory owners versus residents, environmentalists versus labor, and so on. In all of these, the "concerned citizen" bears most of the burden of building a case and bringing about needed change. The role of science is relegated to demonstrating harm, actual or possible.

There is nothing wrong with this approach. It is not much different from the hard-fought campaigns that have addressed known harms such as radioactive waste and dioxin. The difference is that using the precautionary principle is a way to build such a campaign against a potential harm, before the bodies pile up, so to speak: for instance, in the early stages of the development of a technology such as genetic modification; before the siting of a particular factory that will use and may emit toxins; when considering whether roads should be built in a wilderness area; or on early warnings of harm from a substance previously thought safe, such as phthalates used in plastic equipment in hospitals.

## . . . or Setting Goals?

What if, instead, activists began by developing consensus—among themselves, in communities or regions, nationally, or even globally—around particular values? The most direct way to do this is to develop consensus around goals. Although this may seem even more challenging to those of us who live in a nation where social planning is frowned on, it may not be in all cases.

We look enviously at Sweden, whose government some time ago set the goal of eliminating toxins from mothers' milk. Period. This in turn meant developing plans for how that was to be done, step by step, on many fronts, with intermediate goals to mark progress. We might wish our government worked so benignly and with such foresight.

If national governments do not act that way, local ones may, prompted by citizens. More important, the possibility of developing social consensus and the processes for doing so are among the greatest strengths and gifts conferred by a free democratic system. Governments play a role in developing consensus and setting goals but may not be the primary moving force. Events may be, or popular opinion, or organized campaigns, or some combination of these. And consensus need not imply full agreement or a united, lock-step effort.

A vivid current example is the consensus that has emerged, at least in industrialized nations, around eliminating terrorism. This goal emerged suddenly because of events. It requires action of many kinds on many fronts. Governments have to do something, but they also have to listen to public opinion. That opinion varies more than it seemed to in the first days after the attacks on New York and Washington, DC. A genuine debate has emerged on violence and responses to violence, the difference between retaliation and justice, between understanding the roots of violence and justifying it, and so on. It has become clear that terrorism cannot be eliminated simply by eliminating known terrorists. Many things must change, and many people must participate in instigating and carrying out these changes.

The goal of eliminating terrorism, despite the monstrous deeds that prompted it and despite the war rhetoric, has positive aspects. The United States is united, even though we may disagree on exactly what it is that unites us and disagree very strongly on the paths to reaching this particular goal. The fact that at least one goal is shared means that differences are likely to get a better, more cooperative airing.

In the context of this shared goal, precautionary action and attitudes take their proper place. Instead of cowering in fear, some of us see the value in taking certain risks—getting on planes—but acting prudently

when it makes sense to do so—insisting on beefed-up airport security. We see that certain behavior, such as where U.S. troops are stationed, has been far riskier than we realized. We now must decide what to do about that and about a host of other things such as how we display and share our wealth, spread culture and influence, form and carry out foreign policy, and so forth. All of this is a legitimate area for debate and change in the name of the broad goal of eliminating terrorism, or as we might put it positively and even more broadly, making the world a safer place. That is a highly precautionary goal, in the forecaring sense.

Communities do this all the time. In the name of local pride and identity, or simple goals such as "clean and green," "safe schools," or "zero discharge," or even an apparent oxymoron such as "Chicago Wilderness," communities have reduced air and water pollution, laid down bike paths, stopped using lawn chemicals, cajoled industries into exceeding regulatory requirements, and restored struggling ecosystems.

Precaution applies at all stages of such campaigns, but values, in the form of the goal, come first. The goal will reflect some form of forecaring. Democracy and transparency are built in because shared goals invite and require cooperation on many fronts. The relative value of different paths to the goal must be assessed—this is alternatives assessment—but these multiple paths may not be mutually exclusive. Scientists help assess these alternatives as well as the evidence of harm or the possibility of harm that may have prompted the original goal. Even making the case that something will cause harm becomes a different kind of exercise. Instead of concentrating on building a case for why an industry, for example, should take an action or be forced to do so, a goal-oriented approach calls for acting appropriately on the basis of reasonable information and how a particular activity serves or does not serve the goal. Instead of asking how much harm will be done, the question becomes, How much harm can we avoid?

Once a goal is set, it is no longer so difficult to imagine who does what. Government, citizens, scientists, industry, and organizations may all have their roles, and these may shift and vary. It may or may not be necessary or advantageous to create new organizations or new forums for making decisions, for arriving at consensus. Surprising coalitions may form, and former adversaries may find room for agreement.

Is this the precautionary principle? It is something much larger, perhaps even simpler, than the emerging principle of international law now being written into treaties. Nevertheless, that principle has opened a door on a way of thinking, discussing, making decisions, and taking action that has seemed closed to the U.S. environmental community for several decades. The door opens to our values, what we believe and what we want with all our hearts. Let's start there.

## Appendix
## The Blue Mountain Lake Statement of Essential Values

Values become actions. Too many of our actions are killing our planet, our communities, and our spirit. Our actions are killing our loved ones. We are diminishing the future for everyone and everything.

Particular values form the basis of our survival. When practiced, they help us live in reciprocity with nature and with each other. We are the relationships we share, and we are permeable—physically, emotionally, spiritually—to our surroundings. Therefore, we hold these values as essential:

| | |
|---|---|
| *gratitude,* | because our lives depend on air, water, soil, plants, humans, and other animals; |
| *empathy,* | because we are connected with all of creation; |
| *sympathy,* | both necessarily in the course of life and unnecessarily when these values are not practiced; |
| *compassion,* | because it moves us to attend to suffering and injustice; and |
| *humility,* | because we cannot know all of the consequences of our actions. |

We belong to the community of the Earth. It is the source of our own life, and our actions affect its well-being. Therefore, we practice:

| | |
|---|---|
| *respect,* | because it is fundamental to good relationships; |
| *restraint,* | because the Earth is finite, and we must honor its limits; |
| *simplicity,* | because we are only one species sharing Earth with many others; |
| *humor,* | because life is good, and humor disrobes tyranny and absurdity. |

Human beings need sustaining social and natural environments. No one by law or habit is entitled to rob others or future generations of a diverse world vibrant with hope and possibilities. We have an obligation to restore social and ecological fabrics that have been torn by violence or exploitation.

We affirm that all being is sacred and has intrinsic value that is not monetary.

People who hold these values outnumber those who do not. We draw strength from each other. As we abandon harmful activities, we take nature as our guide. We explicitly consider the effects of actions on individuals, families, communities, species, landscapes, regions, and future generations.

It is through love for the particular—a child, a neighborhood, a family of otters, a meandering river—that we find our way to a sustaining relationship with the Earth and our communities.

*Blue Mountain Center,*
*Blue Mountain Lake, NY, November 12, 2000*

**Blue Mountain Participants**

Andrew Jameton, Omaha, Nebraska
Bill Vitek, Potsdam, New York
Bruce McKay, Montreal, Quebec
Carolyn Raffensperger, Windsor, North Dakota
Craig Holdrege, Ghent, New York
David Abram, Victor, Idaho
Derrick Jensen, Crescent City, California
Fred Kirschenmann, Ames, Iowa
Harriet Barlow, Minneapolis, Minnesota
Jennifer Sahn, Great Barrington, Massachusetts
Katherine Barrett, Victoria, British Columbia
Maria Pellerano, Annapolis, Maryland
Marianne Spitzform, Missoula, Montana
Mary O'Brien, Eugene, Oregon
Mark Ritchie, Minneapolis, Minnesota
Nancy J. Myers, Oak Park Illinois
Peter deFur, Richmond, Virginia
Peter Montague, Annapolis, Maryland
Peter Sauer, Salem, New York
Sheila Kinney, Blue Mountain Lake, New York
Steve Light, Minneapolis, Minnesota
Ted Schettler, Boston, Massachusetts
Tracey Easthope, Ann Arbor Michigan
Wes Jackson, Salina, Kansas

## Note

1. See the Web site of the Science and Environmental Health Network (SEHN) (2002) for documents related to the precautionary principle.

## References


Alroe, H. F., & Kristensen, E. S. (in press). Towards a systemic research methodology in agriculture: Rethinking the role of values in science. *Agriculture and Human Values.*

Cohen, B. R. (2001, July). When speculation guides law, innovation and progress halt. Available from Knight Ridder/Tribune Information Services.

ePublic Relations. (2001, July). *One small town destroys major portion of a national pesticide market: Seven lessons for PR, marketing and branding folks.* Available: http://www.epublicrelations.org/Hudson.html

Lubchenco, J. (1998). Entering the century of the environment: a new social contract for science, Presidential address to the American Association for the Advancement of Science, 15th February 1997. *Science 279,* 491-497.

Miller, H. I., & Conko, G. (2001, June 25). We are too safe for our own food. *Los Angeles Times.*

Myers, N. (2000). *Debating the precautionary principle.* Ames, IA: Science and Environmental Health Network, 43-45.

Myers, N., & Raffensperger, C. (2001, Fall). A precaution primer. *Yes!*

O'Brien, M. (2000). *Making better environmental decisions: An alternative to risk assessment.* Cambridge, MA: MIT Press.

Raffensperger, C., & Tickner, J. (Eds.). (1999). *Protecting human health and the environment: Implementing the precautionary principle.* Washington, DC: Island.

Rampton, S., & Stauber, J. (2001). *Trust us, we're experts! How industry manipulates sciences and gambles with your future.* New York: J. P. Tarcher.

Science and Environmental Health Network. (2002). *Home page.* Available: http://www.sehn.org

Thornton, J. (2000). *Pandora's poison: Chlorine, health, and a new environmental strategy.* Cambridge, MA: MIT Press.

Tickner, J. (2000). *Precaution in practice: A framework for implementing the precautionary principle.* Ph.D. dissertation, University of Massachusetts, Lowell.

Wallach, L., & Sforza, M. (2000). *Whose trade organization? Corporate globalization and the erosion of democracy.* Washington, DC: Public Citizen.


*Nancy Myers is communications director of the Science and Environmental Health Network (www.sehn.org). She has been writing about the precautionary principle since SEHN's 1998 Wingspread Conference on the Precautionary Principle. She is a former managing editor and executive director of the Bulletin of the Atomic Scientists. She lives in Oak Park, Illinois.*

Volume 8 Number 3 1996

# Our 'Stolen Future' and the Precautionary Principle

by Dr. Elizabeth M. Whelan



The Precautionary Principle seems to dominate in the book written by my fellow panelists. Typically, it's invoked in situations where the scientific evidence is extremely tentatative but the potential for arousing fear is great. *Our Stolen Future* uses the word *might* 30 times, the word *may* 35 times. We didn't bother counting all the *coulld*'s.

Basically, the authors contend that trace levels of environmental endocrine disrupters — mainly chemicals that either mimic or block estrogen — may result in disaster. Those disasters include lower sperm counts, increased breast and testicular cancer, lower IQ, more endometriosis and reproductive failure. Here's an illustration of the Precautionary Principle in action, taken from page 207 of the book:

"Those exposed prenatally to endocrine-disrupting chemicals may have abnormal hormone levels as adults, and they could also pass on persistent chemicals they themselves have inherited — both factors that could influence the development of their own children." One sentence, two *could*'s and sheer speculation based on little evidence.

I don't buy into the Precautionary Principle, for several reasons. First, it always assumes worst-case scenarios. Second, it distracts consumers and policy makers alike from the known and proven threats to human health. And third, it assumes no health detriment from the proposed regulations and restrictions. By that I mean that the Precautionary Principle overlooks the possibility that real public health risks can be associated with eliminating miniscule, hypothetical risks. As an ancient philosopher said, "It is a serious disease to worry over what has not occurred."

We seem to be a nation fixated on hypothetical risks. My former colleague, the late Aaron Wildavsky, noted that the Precautionary Principle plays well to the crowd, by placing the environmental advocate on the side of the citizenry — "I care about your health, and I propose an intervention that will protect you." And it allows environmentalists to portray those disagreeing with them as indifferent or even hostile to the public health and perhaps motivated by a desire to profit from whatever product or process is held to be risky.

But in reality, the Precautionary Principle itself can be hazardous to our health. It's well known that the health of citizens is consistently correlated with their countries' standard of living. Dismantling our industrially-based high standard of living, as the authors of *Our Stolen Future* would like to see happen, will diminish our standard of living and tlead to poorer, not better, overall health.

In talking about hypothetical risks, we get into the distinction between what people perceive as risks and what has scientifically been established as risky. As a corollary to the Precautionary Principle, consumer activists now insist that if the public *perceives* something as risky, that perception should carry the day regardless whether there truly is a risk or not. In essence, these people argue that science should take a back seat to fear — *whether that fear is justified or not* —when it comes to setting policy.

An op-ed piece published several years ago exemplifies this cockeyed approach to assessing risks. It was written by Dr. Edward Groth III, director of technical policy and public service at Consumers Union, and Professor Peter Sandman of Rutgers University, and discusses Alar, the growth-regulating chemical for apples that was withdrawn from the market in 1989 because of the public outcry over its alleged carcinogenicity. Groth and Sandman conclude that the outrage over Alar was completely justsified while acknowledging that the scientific evidence failed to show whether Alar was dangerous or not. They even say that eating an Alar-treated apple is better for a child than a candy bar!

So why was the outrage justified? The authors offer several reasons:

- "It's not fair." Only the apple growers were benefitting from Alar; and children, who "consume comparatively huge amounts of apples and apple products," will bear "much higher theoretical risks from Alar than adults do."
- "It's involuntary," and therefore "consumers reasonably may ask, "who gave *them* the right to put my child at risk?"
- "Someone's responsible" for Alar. Even if naturally occurring pesticides "pose cancer risks thousands of times greater than the hazards of synthetic pesticides and other agricultural chemicals," Nature is "not making a business decision to sell or spray Alar."

- It's unnecessary," and therefore, "if consumers don't want Alar in apples and apple products, it needn't be there." Where is the science here? There is none, but only a reliance on fear and a hostile stance towards business.

Groth and Sandman believe that the perception of harm is more important than evidence of actual harm in determining public policy. I strongly disagree. We're not doing children nor the rest of society any favors by "dissing" science in this way. Faced with a multitude of risks, both hypothetical and real, and with limited resources for dealing with them, we must rely on science when deciding which risks truly merit our attention.

**Dr. Elizabeth M. Whelan, Sc.D., M.P.H., is president of the American Council on Science and Health.**

This article is based on remarks made on June 12, 1996 at the Willard Hotel in Washington, DC, during a debate with two of the authors of *Our Stolen Future*, Theo Colburn and John Peterson Myers. To obtain a transcript of this debate, "Environmental Chemicals: Public Health Concern or Hype?", send a check for $3.85 to The American Council on Science and Health, 1995 Broadway, Second Floor, New York, NY 10023-5860. Or call ACSH at (212) 362-7044 or fax ACSH at (212) 362-4919.

Contents: Volume 8 Number 3 | All Issues

ACSH Home | ACSH in the Media | About ACSH
Reach Us | Membership | Press Releases
Publications | ACSH Classics | Publications Order Form